AMERICAN RAILROAD JOURNAL,

AND

IRON MANUFACTURER'S AND MINING GAZETTE.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 48 S. THIRD ST., PHILADELPHIA.

Saturday, September 30, 1848.

☞ REMOVAL.

The Office of this Journal is removed from the *Franklin House*, to No. 48 SOUTH THIRD STREET, *third door north* of the *Girard Bank*.

*** A *special request* is hereby made, to those to whom Circulars have been recently addressed, that they will respond promptly to them, as an important question—to *us* at least—is to be decided in accordance with the response given to the request made in those circulars.

Richmond and Danville Railroad.

The Danville Register, of 15th instant, says that "the regular monthly meeting of the board of directors of this company was held in Danville on Wednesday and Thursday of this week. We are happy to learn that the members are in the highest spirits in regard to the prospects of the road and that they are determined to prosecute the work to this place with the utmost vigor and celerity, consistent with the interest of the company. As an evidence of the determined spirit with which they have embarked in the enterprise, we may cite the singular fact—singular, because it is without a parallel in the history of railroad building in the United States—that in less than a twelve month from the organization of the company, they have actually put 100 miles of the road under contract. And we are pleased to learn further that, by a resolution adopted yesterday they have determined to put another 20 miles under contract this side of Staunton river, so soon as the route to this place can be located, (the engineers are now busily engaged in making further surveys:)—and that, as soon as the remainder of the stock shall be taken, amounting now only to the trifling sum of $100,000 which almost any one county ought to take, the whole line will be placed under contract. This, our readers will admit is 'going ahead with a perfect rush;' and for such promptitude and energetic action, we take the libery to tender to the board of directors the thanks of the whole community."

Railroad between Watertown and Rome.

The Watertown, (N. Y.) Journal, says that the survey of the route of this road, just completed, reduces the distance nearly five miles. The estimated expense of construction is also reduced about two hundred and forty thousand dollars. We are gratified to learn that this work is to be pushed forward vigorously.

FULLER'S PATENT INDIA RUBBER CAR SPRINGS.—These Springs have been in use for nearly four years, with most complete success, and they are now in use upon most of the principal roads in this country. They are made of the best material, are economical, light, and very easy in their motion—all persons using them are guaranteed against adverse claims.

Offices 78 Broad street New York, and Jas. Lee & Co., 18 India wharf, Boston.

Railroad companies are cautioned against the statements made by the New Eugland car company. The India rubber used by the patentee is the best that can be made, and does not conflict with any existing patent. The rediculous statement that a patentee may not vend his own invention needs no remark.

The patent for these springs was granted to W. C. Fuller, in Oct., 1845, in the United States and in England; A Mr. Ray claims to have invented another spring, which counsel advise, is a mere evasion of Mr. Fuller's patent, and proceedings are being taken to stop that infringement.

"The New England Car Company" have published an article from the pen of Mr. Hale, president of the Boston and Worcester railroad, expressing his opinion concerning these springs—but they have forgotten to publish the whole of that article; it is therefore given in full now, and the portion omitted by the New England car company is printed in italics, that the public may judge of the manner in which this "company" pervert Mr Hale's meaning.

G. M. KNEVITT, Agent,
78 Broad St., New York.

September 30, 1848.

[*From the Boston Advertiser of the 7th June.*]

INDIA RUBBER SPRINGS EOR RAILROAD CARS.

"Of the numerous uses to which the wonderful elasticity and durability of India rubber, renders this material applicable, we are hardly aware of one, in which it has been more successful than in forming springs for railroad cars. We have had occasion to observe, for some months past, its application to this use, on one of the passenger cars on the Newton special train of the Boston and Worcester railroad. It is there used not only for the springs on which the car rests, but for the springs attached to the draw bar, at each end of the car, to prevent any jar on the sudden commencement, or interruption of the motion of the car. For both these purposes it appears to be admirably adapted, and we do not learn that during the period in which it has been used, any defect in it has been discovered. It renders the movements of the car extremely easy, and protects it more effectually, we think, than any other spring which we have seen in use, from every harsh or unpleasant motion, either vertical or horizontal. It is also simple in its form and application, extremely light, and little liable to get out of repair. During the period of some months in which we have seen the springs in operation, there is no apparent wear or diminution of its efficiency. *Each spring is composed of several circular layers or rings of India rubber, a thin metallic plate of the same size being interposed between each of the layers. From the simplicity of its form, it cannot be expensive, and it admits of being made more or less elastic almost at pleasure. The invention, we understand, was first patented in England, where it has been introduced into general use on several of the principal railroads, and we have no doubt it will come into very extensive use in this country. The patent for this invention, we understand, has been granted to Mr. W. C. Fuller, in England and France, and also in this country. Mr. Knevitt, of New York, is the agent for the patentee in the United States, and he has established a branch office for the supply of the article in this city, as may be learned from an advertisement in another column of this paper.*"

Mad River and Lake Erie Railroad.

This important work, says the Ohio State Journal, "is now finished from lake Erie to its junction with the Little Miami railroad, at Springfield, a distance of 134 miles—being by far the most extensive work in the State of Ohio, which has been prosecuted to a successful conclusion by the enterprise of individuals; it has, as yet, yielded no income to the stockholders—the resources of the company having been to this time, appropriated to the construction of the road. From the experience of the past however, as well as from the present appearances, there is every reason to believe that the enterprise of the projectors will be richly rewarded by rapid, abundant

and permanent income, and a large and increasing profit on their investments in future.

"The capital stock of the company is four millions of dollars; the cost of construction will not fall far short of two millions. The company has 16 locomotive engines, 15 of which are now in constant use upon the road, and there is a demand for more services than they are able to perform. The receipts of the road during the months that are past will not vary much from $30,000; and when it is recollected that in a day or two the line of railroad transportation will be complete from Cincinnati to lake Erie by this route, thus furnishing the cheapest and most expeditious as well as the safest and most comfortable road between the east and the west, it cannot be unsafe to predict a very considerable increase both of business and profit."

The editor of the State Journal may well predict a rapid increase of business on this road. It opens an easy, rapid, and reliable communication between the lakes and the Ohio river at Cincinnati, and it will be sure to attract much of the travel which has heretofore ascended the river to Wheeling and Pittsburg: and it will increase the way travel along its line, by which those who have invested their money and waited years for its completion, without return, will now reap their reward, as it must become a good paying stock.

South Carolina Railroad.

Reply of the president to the committee of investigation.

We concluded, in our last number, a long article on the condition, and disagreements amongst the stockholders of these roads—and promised to give in another number, some extracts from the reply of the president, Col Gadsden, to the report of the investigation committee.

On the 30th of May last the stockholders met, according to adjournment, to "act upon the reports of the committee of investigation." After the meeting was organised, Col. Gadsden read an able reply, and defence of the management, showing that it had been the effort of the directors and officers to perform their whole duty. When we commenced reading it we took pencil in hand to designate those paragraphs which might be omitted; but on reading it through, we found it so connected, and so much to the point, that we concluded to publish it entire, long as it is, for the reason that it gives the result of *experience* and *thorough investigation*, which may be useful to companies who have yet everything to learn. It will be found *well* worth the space it occupies, and the time it requires to read it. We should like to give the appendix attached to the president's report, as it gives details of the present condition of the working stock of the company, but cannot well devote more space to this subject now.

It appears that the recommendations of the majority report of the committee, were mainly laid on the table, or indefinitely postponed, which is the best possible evidence that the great body of the stockholders appreciate the services of the directors, and their able and efficient officers, as they ought, and that the business of the company has been as well managed, as it could well be, under all the circumstances.

It is evident that this effort, on the part of the opposition, has strengthened the board and the president in their position, and its effects will doubtless be to give new life and energy to their labors, by which good will result to the public, and, of course, in turn, to the stockholders.

We may hereafter give the report of S. M. Fox, Esq., in relation to the inclined plane: and we shall at some future time refer again to the question of removing the depot to the water. The following is Col. Gadsden's report:

Report of the President to the Board of Directors of the South Carolina Railroad Co.—Charleston, S.C. May 28, 1848.

GENTLEMEN: After the renewed trust reposed in you as a board of directors, at the last annual meeting, and the confidence you have on all occasions manifested towards me as the executive officer of your body, you could not have been more gratified than myself, at the investigation instituted by the stockholders into the affairs of the corporation.—It would be presumption to suppose that the condition of the road could be found free from imperfections, or the administration of the affairs of the company entirely faultless; but your president did not anticipate anything like the sweeping condemnation contained in the report of the majority of the investigating committee. He deems it due to the *company*, to the *directors* and to *himself*, to submit for consideration, some facts and objections, from which perhaps it may appear, that the conclusions of the majority of the committee, however deliberately adopted, are not altogether just.

The subjects of complaint most prominently put forward by the report are, want of skill and care in the inspection of timber, so as to secure proper size, strength and durability; want of uniformity and system in the repairs and reconstruction of the road; want of attention to the proper means of ensuring a sufficient quantity of water at all *times* for the use of engines, by providing wells of the necessary depth and capacity; and it is distinctly stated that the force provided for the repair of this road, and keeping it in the best working condition is abundantly sufficient; but that it has not been judiciously and efficiently applied. It is to be regretted that the report does not assign the reasons for the opinion that the force is sufficient, if properly applied, to keep the road in better condition than it is—and that it does not point out the particular department in which the want of judgment and efficiency, in its application was not apparent.

The timber contracted for, undergoes a rigid inspection by the principal or assistant superintendent of the road. It is required to conform to the terms of the contract, and not to show on dimensions of 8 by 10 inches, more than ¼ inch sap on any edge. There is often a conflict between the contractors and inspectors in this matter, and the last year, of 10,000 cross ties delivered, 4000 were rejected—and it is very possible that this discarded timber along the line of the road, may have misled some of the members of the committee.

The size of the timber, both for *longitudinal rails and cross ties*, corresponds on the South Carolina railroad, with that used for similar purposes on all other railroads. In some of our plans of construction, they greatly exceed in dimensions, what engineers on other works most approve.

"*Want of uniformity*" in the superstructure, is not only admitted by the president, but is acknowledged to be by design. There is no subject on which the practical managers of railroads differ so much as on the plan of superstructure. The timber in a track must vary in form and in size, according to the strength of the *iron rail* used: and all variations in the modes of construction, as seen on other roads, and sometimes, as in this instance, on the same road, are but experiments or expedients to counteract the *universally acknowledged defects of a light bar, whether of the flat or flange form.* Opinions accord in approving only of the cross tie road for a heavy T or bridge rail; but with a rail of lighter weight, and like the flange on the S. Carolina road, not exceeding 25 lbs. to the yard, it requires vigilance and nice observation to decide as to the form of wooden superstructure most to be approved; such an iron rail, imparting no strength in itself, and furnishing little more than the hard and smooth surface for the driving wheel of a locomotive to act on. The different plans, therefore, which are now under test, to obviate, if possible, the defects of the Hamburg and other roads constructed at the *same early period;* and the "*want of uniformity*" complained of, may ultimately prove the only means of coming to safe results, as to the most *proper superstructure for a light iron rail.*

The plan to be most preferred, must have in view not merely the labor and cost of original construction, but the facilities for reconstruction. That which imparts strength sufficient to resist the trying action, under the different speed of the locomotive and trains, and *simplest in the plan*, so as to involve the least cost *in construction and reparation*, is the superstructure most to be desired. To attain these objects, experience is the only safe guide. One of the plans now under the test, and which, from the *unusual quantity and weight* of timber applied, seems to have escaped the condemnation of the majority committee, is found objectionable, and for the very cause which they seem most to approve. It is defective in the small strip under the rail, which is subject to premature decay. It requires the application of a larger force in the construction as well as in the reparation. It involves a heavier first cost in the material, and a corresponding additional charge in the reparation.

Another structure, however, and which has been exposed to the animadversion of the committee, on account of the imagined insufficiency in the size and strength of the timbers, has been found thus far free from the above objections. It is simpler and cheaper of construction; the string pieces are flared narrower at top, so as to bring the iron nearer to its centre of gravity; but are *wider at the base*, and of greater depth, (which constitute its principal strength) than similar pieces of timber on any other road. This plan was first experimented on twelve years ago, on a short section of road, from which, as yet, no cross tie has been renewed, and the replacing of stringers is all that has been found necessary.

A similar plan of superstructure has been recommended by the experienced engineer of the Charlotte railroad; and for a light iron

rail, involving the necessity of a wooden stringer, will be found most to be preferred.

There is no subject on which speculation has been found so much to fail, as on the *preservation* and *durability* of timber. You may observe all the instructions as to seasons of felling; you may be particular as to the different exposures supposed to be adverse or favorable to preservation; and yet exceptions will be found in conflict with what theory or practice had seemingly sanctioned. In this latitude, the average durability of pine timber in the superstructure of a railroad, has been estimated at five years; or the calculation is, that pine timber half exposed and half concealed, near the surface of the earth, will have to be renewed, on an average, every fifth year. There are instances, however, and not rare, and in the same stick of timber, so as not to be explained from any difference of quality, where decay has been more rapid in one portion than another; and cases are frequent, and without any perceptible cause, where pine timber has decayed in half the time in one exposure, that it did in another. On an old road of 136 miles in length, constructed of pine timber, close inspection may at any season discover partial deterioration; and vigilance, however unceasing, cannot be prepared at all *points* to detect unexpected, concealed and rapid decay, or to apply the "prompt and vigorous correctives," to which the committee seem to think the police on the road is fully equal.

The report states they looked into the condition of the road with as much care and minuteness as *circumstances* would allow.—Those circumstances permitted searching examinations at but three points; on the entire line of road, and where the *reconstruction* of *short sections* was *in progress*, and the *timber exposed in its bed*. But on a road with the deep fillings of the Hamburg track within a few inches of the flange of the rail: the cross ties unexposed, and full half of the stringer *buried* and *concealed*, the most penetrating eye, the closest personal inspection, and the most minute observation on every mile, could not detect that general deterioration which the report would seem to imply.

The drainage of a road is, of all objects of investigation, the least to be tested by a partial or occasional inspection. The committee have themselves complained (what they did not personally witness) of the labor necessary to remove the sand which accumulates at the foot of the plane after every heavy rain.—They certainly then may have inferred the difficulty or impossibility of keeping, on all occasions, open, the number of ditches on so long a line of road, and where, in a single night's rain, the labor of months may be lost and invisible to future inspection. A different period of examination, therefore, and at an interval of but a few days, may present very contrary aspects. The ditching devolves generally on a small *floating* gang, which is transferrable to any point of the road where the exigencies of the service may require, and which may be beyond the ability of the local gang to perform. During the last summer, and from the known incessant rains which inundated the middle and lower sections of the State, these ditching demands became very severe. The excavations of the day, became often filled up in the night, and there was more work of this kind performed last summer on the Columbia road, than at any former period. In addition to these labors, the floating gang had to aid in the construction of three new and indispensable turnouts, at Hamburg, Blakeville, and Sineath's—besides rendering assistance to repair the damages of a freshet at Edisto bridge—where the road was under water for more than a week—and erecting additional platforms.

The president is not insensible to the importance of drainage, and for some of the reasons inculcated by the committee. But as to the drainage with a view to the preservation of the timber in the track, they are as much at variance with the *experience* as some of their other speculations on durability and decay. A *uniform moist soil* is much more favorable to the preservation of timber, and entire immersion renders even the most inferior qualities indistructible.

In one of the low cuts on the Hamburg road, which after heavy rains became flooded and difficult to keep drained, the timber was found to outlast all the neighboring sections, which were kept dry or subjected to the alternating processes of all soils exposed to the changes of weather.

It is acknowledged, that there was an unexpected and threatened failure of water the last winter, in the wells on the lower sections of the road, and which had been for years previously found fully equal to a plentiful supply. Even the wells in the yards of our city were found wanting at the same season. The deficiency in the number is not complained of, there being five water stations in the space of 31 miles. They were made of the depth and capacity which past experience had sanctianed. On the apprehended deficiency, the "*obvious remedy*" was promptly applied. A new well was sunk and *pump and tank erected* at Sineath's, which likewise failed. The wells at the 31 mile station and at Ross's were enlarged and deepened, but without the desired effect, and, as a last resort, a pump and tank put up in the pond made by the embankment across a small stream at the 20th mile of road. That all the attention and assiduty, on the part of those entrusted with this duty, to remove the threatened evil, was applied, does not admit of a doubt.

The decayed timber, taken from the bed of the road, is permitted to lie at or near the spot from which it is removed, to furnish fuel to the laborers when at work on those sections, and thus prevent a trespass on the company's wood or neighbor's fences. In the spare time of the hands, it is cut up to aid in supplying the locomotives.

The number of individuals in the employ of the company appears large. There is an error, however, in stating it at 750, though that number does appear on the pay rolls for December. The police of most roads, for the maintenance of the way in good working condition has generally been estimated at one man per mile, and on an old and imperfect structure, like that of the Hamburg road, it has been found scarcely sufficient. The published reports of roads rarely furnish the number of persons employed in the various departments, though by reference to some of the New York roads, we perceive that on a road of 73 miles in extent, the average number of persons in the company's employ was 452. On another of 78 miles, 230; and on a third of 46 miles, 69 agents and laborers were reported.

The rolls in the workshops and transportation departments do not exhibit a uniform or fixed number. They vary as the business of the road fluctuates, and the last season the construction of new cars, and other additional work connected with an increase of locomotive power, necessarily swelled the number of operatives and laborers beyond the usual demand of the company.

The president, however, accords with the committee, that the number may seem large, and that with more appropriate accommodations at the Charleston depot, and better arranged workshops, a very large reduction may possibly be made in this department of expenditure.

Congaree Trestle.—The original construction of this work, with which this administration had no agency, was defective, in substituting pine for cypress piles. The approaching decay, however, threatened from this circumstance, induced early measures to be taken the last season to contract for cypress piles to take the place of pine in the new structure, and which measure, it is gratifying to perceive, both in relation to quality of material and execution of plan, has met with the commendation of both sections of the committee. The work has not been postponed beyond the necessity recommending it, though its commencement bears date at the unfortunate period when the company has found need for all its available funds.

Camden Branch.—The Camden branch, as an unfinished road in the progress of completion, and constructed with all the lights which experience has shed on the most approved mode of construction, your president had hoped would have escaped reproof. The committee, however, condemn the dispensing with the longitudinal and subsill, "*hitherto considered indispensable.*" We have adverted to the difference of opinions prevailing among engineers on the superstructure of railroads. The longitudinal timbers were hitherto adopted to give the strength which a light iron rail could not impart. The more modern improvements go to substitute the strength of iron for wood, in a heavy rail secured by spikes to a cross tie. The longitudinal sub sill, so far from being the usual plan, and the Camden road the first to abandon it, was first experimented on in the Stonington, and subsequently in the Columbia road. Here it has proved defective, and not answering the object intended, being a very expensive mode of construction, it was not adopted on the Camden road. The sub sill is not indispensable, nor has it been found to give the support the committee suppose. It is sunk below the bed of the road in a trench, and the cross

ties laid on it, touching only on the ends, and deriving most of their support in the centre from the graduations of the road. This sub sill in the cuts has been found to affect the *drainage*. The water on the road bed settles in the trenches made to receive it, and the action of the engine imparts, in wet weather, a churning motion to the sill, converting into mush all beneath it. The foundation then fails, and, instead of the sill supporting the cross ties, it shrinks from it, and as the tie is supported by the centre of the road bed it cannot follow the sill in its sinkings, but remains suspended at its ends.

To be Continued.

[From the Philadelphia "Commercial List."]

Pennsylvania Coal Trade for 1848.

From the Lehigh Mines.

The amount of coal shipped from the Lehigh mines during the week ending the 16th inst., and since the opening of the navigation, has been as follows:

	This week. tons.	Total this year—tons.
By Lehigh company, Sept. 19.	9,652 11.	174,419 01
By Room Run ..... "	5,075 18.	88,051 05
By Hazleton.....	2,332 00.	66,739 00
By Beaver Meadow.....	2,249 16.	59,074 02
By Buck Mountain.....	2,760 18.	52,312 08
By Spring Mountain.....	1,853 01.	48,416 01
By Cranberry Mines.....	2,120 00.	10,000 00
White Haven.....	350 01.	7,405 15
Diamond Co.....	537 13.	1,213 17
Total.....	26,921 18.	507,631 09

From the Schuylkill Mines.

The amount of coal forwarded by Reading railroad during the week ending the 21st inst., and since the 1st of January, has been as follows—

	Tons.
From Schuylkill Haven.....	9,628 10
" Pottsville	5,191 17
" Port Carbon.....	6,733 15
" Port Clinton.....	3,263 12
Total this week.....	24,816 14
Total this year.....	923,550 15

The amount of coal brought to market by the Schuylkill canal during the week ending the 21st inst., and since the opening of the canal, has been as follows:—

	Tons.
From Pottsville and Port Carbon.....	8,945 14
" Schuylkill Haven.....	3,396 08
" Port Clinton.....	549 04
Total this week.....	12,891 06
Total this year.....	311,459 01

Recapitulation.—Total Shipments this Season.

By Lehigh companies.....	507,631 09
By Reading railroad.....	923,550 15
By Schuylkill canal.....	311,459 01
Total.....	1,742,641 05

From the Civil Engineer and Architects' Journal.

On Chemical and Electrical Forces.

BY PROFESSOR FARADAY.

Professor Faraday has this season delivered a course of seven lectures at the Royal Institution, "*On the Allied Phenomena of the Chemical and Electrical Eorces.*" The last lecture of the course was given on Saturday, the 17th ult., and we now subjoin a brief sketch of the whole, showing the mode in which the subject was treated, and describing the principal experiments by which it was illustrated.

The *first lecture* was devoted entirely to explanations of the character and illustrations of the nature of chemical force, commencing with its simplest forms. In the first place, Professor Faraday explaned the difference between mechanical force, or the force of gravitation, which produces molecular action and aggregation and aggregation of masses, and the action of chemical force, which takes place among the particles of matter. At the same time as he entertains the opinion that all forces are closely allied, if not identical, he showed several experiments in which chemical action is effected by mechanical force of which the explosion of fulminating powder by percussion afforded an example. The illustrations of chemical action in its feeblest form, he showed to be closely allied to mechanical force, as the aggregation of the particles of water, he said, depends on the same force as the most energetic chemical action; the difference between them being only in degree. As an illustation that chemical action takes place during the mixing of fluids, he pours some spirits of wine gently on the top of water in a glass vessel, into which a long tube was inserted. The vessel and the tube being quite filled, he inverted the apparatus, to mix the spirits of wine with the water, when contraction in the volume of fluid was manifest by the tube being no longer full. Among other exemplifications of chemical action, were the solidification of two gases, muriatic acid gas and ammoniacal gas, on being mixed, and the conversion of two limpid liquids, carbonate of potass and muriate of lime, into a white solid mass. The results of chemical action, Prof. Faraday observed, are the production of compounds distinct from, and frequently quite dissimilar to, the original substances that enter into combination. To show in a striking manner the difference between a mixture and a compound he mixed together some copper and iron filings, and seperated the iron from the copper by means of a magnet; whereas in a chemical compound no mechanical force can seperate the combined particle, and they can only be resolved into their original elements by the chemical action of some more energetic agent. Though the original substances that enter into chemical combination seem to be entirely lost in the resulting compound, yet there is no destruction nor any alteration in the elements, nor is there any creation or destruction of power produced by the combination. Professor Faraday illustrated the reproduction of the elementary substance of a compound after it had been apparently destroyed, in the followiug manner, He put some iodine into a glass flask, which, on being heated, emitted the purple or violet colored fumes peculiar to that substance. He then added zinc and water to the iodine, when a combination took place in which the properties of the iodine were apparently lost, and by no application of heat could the violet fumes be produced. On the addition of sulphuric acid, however, the iodine was set free from its combination with the zinc, and its fumes where again perceptible. That there is no destruction or change in the particles of matter produced by chemical action is generally admitted, but the Professer observed, that some philosphers still cling to the notion that there is a creation of power, as exhibited in electricity; but this opinion, he maintained, is not found on fact, for there can be no creation of power without the creation of matter.

In the *second lecture* the consideration of the different actions of chemical force was resumed in the commencement, and then its gradual transition into electrical force was developed. In the first place, the Professor pointed out the difference that exists between the force of gravitation and chemical force in the relative constancy of their actions; for whilst gravitation never ceases to act at any moment, chemical affinity, on the contrary, often lies dormant for ages, until circumstances arise that bring it into action. Several experiments were performed to illustrate this, and also to show that the results of chemical action may be reversed by varying the temperature and the other condtions under which it takes place. A mixture of nitrous and oxygen gases, for example, produces no change on litmus or turmeric paper, but when a stream of those mixed gases issues into the atmosphere at the ordinary temperature, a piece of moistenad litmus paper exposed to the current is reddened, thus proving the presence of an acid. When the same stream of mixed gases is heated, the previously reddened litmus paper is restored to its original blue colour, and tumeric paper is turned brown, showing that the directly opposite property has been given to the gases, which then become alkaline instead of acid. When approaching to those chemical actions which are accompanied by the development of electricity, Professor Faraday first exhibited the solution of copper by an acid, and its reproduction in a metallic form on pieces of iron and zinc, which metals having a greater attraction for the acid that held the copper in solution than the copper itself, entered into combination with the acid and liberated the copper. He afterwards exhibited the action of oxygen and zinc, by first pouring some diluted sulphuric acid on a piece of that metal, which decomposed the water by attracting its oxygen, with which it entered into combination and liberated the hydrogen as gas. On introducing a few shillings into the glass, the vigour of the actions increased, and the decomposing power of the zinc seemed to be transferred to the silver, from which metal copious streams of hydrogen gas arose. A more obvious exhibition of the extension and transfer of chemical action from one metal to another was effected by the deposition of copper on silver from solusion of the sulphate of copper. When a piece of silver is immersed alone in a sulution of sulphate of copper, no action whatever takes place, and it might so remain for any length of time without sensibly decomposing the solution; but as soon as a piece of zinc or iron is brought in contract with the silver in the solution, the copper is depesited on the silver as readily as on the zinc; and when the latter is amalgamated with quicksilver, the effects of decomposition are transferred entirely to the silver, and none of the copper is deposited on the amalgamated zinc. This effect is equally produced, whether the two metals are brought into contact in the solution, or whether connection between them is made by a wire through

which the action is readily transmitted. A new class of phenomena is brought into play by this exhibition of chemical force in dissimilar metals. When the wire that connects the two pieces of metal is made to pass over a suspended magnetic needle, the needle is deflected on one side, and by expanding the surfaces of the metals sufficient power is obtained to make a wire red hot. The deflection of the needle at any part of the connecting wire where it may be placed, shows that the action occurs along the whole course of the wire, and exemplifies one of the positions which the professor wished to establish, viz: that the distant and local actions are identical. This new class of phenomena, Prof. Faraday said, was, in his opinion attributable merely to another exhibition of chemical force, but he should, in deference to received usage, denominate it electrical force.

(To be continued.)

Ewbank's Hydraulics.

New York, Greely & McElrath.

The author and publishers of this valuable work have done the community important service in the production of this work.

We have frequently read extracts from it in our exchanges, but have never met with the work until recently, when on a visit to N. York—and we were not aware, until we looked through the eight numbers, comprising nearly 80 pages each, or about 600 pages in all, how little we actually knew in relation to the details of the subjects upon which it treats.

It treats first, historically, upon the subject of raising water; of the various plans, devices, and machines used for that purpose. The author says:

"It was a favorite subject of research with eminent mathematicians and engineers of old; and the labors of their successors in modern days, have been rewarded with the most valuable machine which the arts ever presented to man—the STEAM ENGINE—for it was 'raising of water' that exercised the ingenuity of DECAUS and WORCESTER, MORELAND and PAPIN, SAVARY and NEWCOMEN; and those illustrious men, whose successive labors developed and matured that 'semi-omnipotent engine,' which 'driveth up water by fire.' A machine that has already greatly changed and immeasureably improved the state of civil society; and one which, in conjunction with the printing press, is destined to renovate both the political and moral world. The subject is therefore intimately connected with the present advanced state of the arts; and the amazing progress made in them during the last two centuries, may be attributed in some degree to its cultivation."

He also says, "Whenever we attempt to penetrate that obscurity which conceals from our view, the works of the ancients, we are led to regret, that some of their *mechanics* did not undertake, for the sake of posterity and their own fame, to write a history and description of their machines and manufactures.

"We know that philosophers, generally, would not condescend to perform such a task or stoop to acquire the requisite information, for they deemed it discreditable to apply their energies and learning to the elucidation of such subjects. (Few could boast with Hippius—who was master of the liberal and *mechanical* arts—the ring on his finger, the tunic, cloak and shoes which he wore, were the work of his own hands.) Plato inveighed with great indignation against Archytas and Eudoxus, for having debased and corrupted the excellency of geometry, by mechanical solutions, causing her to descend, as he said, from the incorporial and intellectual to sensible things; and obliging her to make use of matter, which requires manual labor, and is the object of servile trades."

So it seems that pursuits "which required manual labor," were no more in vogue with philosophers of old, than with the *fashionables* of the present day. The history of antiquity, the author thinks, was poluted with the accounts of wars and warriors, while the more useful matters were omitted, and lost, mainly, to mankind.

He asks, "Of what ultility to us at this day, is either Nimrod, Cyrus, or Alexander, or their successors, who have astonished mankind from time to time? With all their magnificence and vast designs, they are returned into nothing with regard to us. They are dispersed like vapors, and have vanished like phantoms. But the inventors of the arts and sciences labored for all ages. We still enjoy the fruits of their application and industry—they have procured for us, *all the conveniencies of life*—they have converted all nature to our uses. Yet, all our admiration turns generally on the side of those heroes in blood, while we scarce take any natice of what we owe to the *inventors of the arts*."

Our author is, however, neither a philosopher of old, nor a "fashionable of modern days," as he says,

"If we judge correctly of human character, we should admit that the mechanic who made the chair in which Xerxes sat, when he reviewed his mightly host, or witnessed the sea fight at Salamis, was a more useful member of society than that great king; and that the artisans who constructed the drink-vessels of Mardonius, and the brass mangers in which his horses were fed, were really more worthy of posthumous fame, than that general, or the monarch he served: and, if it be more virtuous, more praiseworthy, to alleviate human sufferings than to cause or increase them; then that old mechanician, who, when Marcus Sergius lost his hand in the Punic war, furnished him with a *iron* one, was an incomparably better man than that or any other mere warrior; and so was he, who, according to Herodotus, constructed an artificial foot for Hegisostratus."

He says also that "A description of the *foundries* and *forges* of India and of Egypt; of Babylon and Byzantium; of Sidon, and Carthage and Tyre; would have imparted to us a more accurate and extensive knowledge of the ancients, of their manners and customs, their intelligence and progress in science, than all the works of their historians extant; and would have been of infinitely greater service to mankind.

"Had a narrative been preserved, of all the circumstances which led to the invention and early application of the *lever*, the *screw*, and the *wedge*, *pulley*, *wheel* and *axle*, etc.; and of those which contributed to the discovery and working of the metals, the use and management of fire, agriculture, spinning of thread, matting of felt, weaving of cloth, etc., it would have been the most perfect history of our species—the most valuable of earthly legacies. Though such a work might have been deemed of trifling import by philosophers of old, with what intense interest would it have been perused by scientific men in modern times! and what pure light its examination would have imparted to every inquisitive and intelligent mind!

These extracts serve to show us the views of the writer, and to ensure to his readers—who *ought* to be *hundreds of thousands*—a really useful book.

We should like right well to give some of his descriptions of the ancient modes of elevating water, but we cannot make them intelligible without the illustrations, which we have not got. In chapter 4th he says:

"At what period of mans' history he first had recourse to wells, we have no account; nor of the circumstances which led him to *penetrate the earth* in search of water. Wells we have no doubt are of antediluvian origin, and the knowledge of them, like that of the primitive arts, has been preserved by uninterrupted use from the period of their first discovery. At first, they were probably nothing more than shallow cavities dug in moist places—and their depth occasionally increased, in order to contain the *surface* water that might drain into them within certain intervals of time; a mode of obtaining it still practised among barbarous people."

He thinks that "mans' ingenuity was probably first exercised in procuring water;" and it appears that they became skilled in the art of constructing them, as he says that,

"In no other part of the world, even in modern times, has more science been evinced, or mechanical skill displayed in penetrating the earth, than is exhibited in some of the ancient wells of the east; and it is to their authors, that *we* are indebted for the only known method of sinking wells of great depth, thro' loose soils and quicksands, viz: by first constructing a curb, of stone, brick, etc., which settles as the excavation is deepened, and thereby resists the pressure of the surrounding soil."

The discovery of wells in good condition in the buried cities of *Herculanæum* and *Pompeii* show their antiquity, and the state of perfection attained in their construction before the Christian era.—Speaking of cisterns, he says:

"Having mentioned the rain water cisterns of the Romans, it may be observed, that they were as common in Pompeii as they are in this city, every house having been furnished with one.

"As Pliny's account of these cisterns may be useful to some mechanics, especially masons, we shall make no apology for inserting it. 'The walls were lined with strong cement, formed of five parts of sharp sand, and two of quicklime mixed with flints; the bottom being paved with the same, and well beaten with an iron rammer.' B. xxxvi, 23 Holland's trans. The composition of this cement differs from that which Dr. Shaw says has been used in modern times in the east; and which he thinks is the same as that of the ancients. He says the cisterns which

were built by *Sultan ben Eglib*, in several parts of the kingdom of Tunis, are equal in solidity with the famous ones at Carthage, continuing to this day, unless where they have been designedly broken, as firm and compact as if they were just finished. The composition is made in this manner: they take two parts of wood ashes, three of lime, and one of fine sand, which after being well sifted and mixed together, they beat for three days and nights incessantly with wooden mallets, sprinkling them alternately and at proper times, with a little oil and water, till they become of a due consistance. This composition is chiefly used in their arches, cistern and terraces. But the pipes of their aqueducts are joined by beating tow and lime together, with oil only, without any mixture of water. Both these compositions quickly assume the hardness of stone, and suffer no water to pervade them. Trav. 286."

It is amusing to trace the improvements adopted for drawing water. The following extract is almost incredible—but the comment of the author is *admirable.*

"A very pleasing instance of female dexterity in carrying water, is recorded by Herodotus, v, 12. As Darius, king of Persia, was sitting publicly in one of the streets of Sardis, he observed a young woman of great elegance and beauty, bearing a vessel on her head, leading a horse by a bridle fastened round her arm, and at the same time spinning some thread. Darius viewed her, as she passed, with attentive curiosity, observing that her employments were not those of a Persian, Lydian, nor indeed of any Asiatic female:—prompted by what he had seen, he sent some of his attendants to observe what she did with the horse. They accordingly followed her; when she came to the river, she gave her horse some water, and then filled her pitcher; having done this, she returned by the way she came, with the pitcher of water on her head, the horse fastened by a bridle to her arm, and as before, employed in spinning.

"Industrious labor is an ornament to every young woman; indeed neither the symmetry of her person, nor the vigor of her mind can be perfectly developed without it. The fine forms and glowing health of the women of old, were chiefly owing to their temperate modes of living, their industrious habits, and the exercise they took in the open air."

Who can estimate the benefits which would result to community if this were *fashionable* doctrine?

From the drawing of water in an earthen vessel, by a string in the hands of the fair damsels of antiquity, to the rope and pulley with *one*, and then with *two* buckets, and then with animal power, by pulley and rope, and then by the windlass, with its various modifications, is exceedingly interesting and instructing.

We could fill pages of the Journal with interesting extracts from this work, if we had the cuts to illustrate them, but as it is we cannot give the most interesting portions of it—and we therefore commend the work itself to all who are interested in such matters. It is probably to be had at the principal booksellers, at 25 cents a number, or $2 for the 8 numbers, making over 600 pages. We shall be very likely to refer again to a work of so much interest.

Wire Rope for Standing Rigging to Ships of War.

We find the following favorable notice of wire rope for standing rigging, in the Mining Journal for 8th July—and give it a place in the Journal, that it may meet the eye of those who direct such matters at Washington.

The "Penelope," Government Steam-Frigate.—This frigate, carrying 42 guns, was, some six years since, converted into a steamer with 600-horse power, having 72 ft. put into her midships—her former masts and yards standing. Application having been made to the Admiralty, and a plan submited to the Lords commissioners at the time, to fit her with patent wire-rope as standing rigging, it was submitted, that each of the lower shrouds should be shackled on singly to collars passing round the mast-head, so that, in case of an action, should any one or other of the shrouds of the vessel be carried away by shot, having duplicate shrouds, that which was damaged could be instantly unshackled and taken down—the duplicate shroud supplying its place, without being compelled, as heretofore, to lift the other shrouds over the mast-head, which operation is, indeed, impossible to affect at sea. In accordance with the suggestions so made, the *Penelope* was fitted; and it is highly satisfactory to find, from a report made to the admiralty, that the contemplated advantages have been fully realised.

The *Penelope* is now in her second commission as a flag-ship on the coast of Africa, six years having elapsed since her present wire-rope rigging was first fitted; and, from the representations made by the authorities, of the advantages attendant, and the convenience the commodore had experienced, in consequence of his flag-ship being so fitted, it is expected that such principal will be generaly adopted; and we are creditably informed, that the Lords Commisioners of the admiralty contemplate having the whole of the ships of the navy fitted in like manner; and her Majesty's frigate, *Reynard*, requiring to be rigged, is now being fitted at Woolwich, by Mr. Andrew Smith, C. E. (the patentee of the wire-rope), which is now being extensively employed for mining and railway purposes, the same principal, in the present case, being applied as that to the *Penelope.*

Iron Trade in the United States.

The following notice of this branch of business is taken from the London Mining Journal, of 12th August. It says:

The [American] correspondent of the *Birmingham Journal*, in his letter of last week, says—"The financial year of the government closed on the 30th June; but, judging from the usual dilatoriness of the treasury department, in issuing their returns, the details of our trade will not soon see the light. The opponents of free trade urge that, in consequence of English iron forced upon our markets, encouraged by a low tariff, the ironmasters no longer keep their mills running night and day, as they did last year, and the markets of the west, which have hitherto been the chief customers of the Pennsylvania ironmasters, are in a great measure lost to them. 'Under the old law (they say), English hoop iron did not as now find its way to the western and richest iron section of Pennsylvania, to be used as hoops to wooden buckets, at a saving of 25 per cent; nor did the small bar iron find its way to the lake countries in such an amount as to make a similar quality of the home made article unsaleable.'—Some attention has also been drawn to the fact that some of our railroad companies have lately contracted for English iron at very low rates. The Erie railroad company, for instance, have made a contract for their rails at £6 per ton, delivered in New York. which has been called forth some petulant remarks from our ironmasters, who contend, with seeming justice that we ought to be able to make the iron for our own railroads, as we have abundance of the raw material, and no lack of the ability to manufacture. The company, however, have doubtless been able to buy cheaper abroad than they could do at home, and during the current year some millions of dollars will be sent abroad for this article. The exports from this port for the first six months of 1848 where $22,377,881, of which over $7,000,000 where in specie—this leaves a balance of trade against us in New York alone of over $24,000,000, at the same time that we have been drained of so much specie. Under all the circumstances of the case, I think your merchantile readers will agree that it will be their true policy to consign lightly, as it is ours to import with caution, as the state of affairs in Europe may instigate many parties who must sell, to seek a market here at any sacrifice."

Electric Telegraphs, Improvements in

As the telegraph has become an important and rapidly growing interest, and as there is a legal investigation now being made, as to rights of using other than Morse's patent, we give the following specification, describing the improvements in working, by the Messrs. Highton, of England. It will be interesting to many of our readers, we feel quite sure. We find it in the London Mining Journal of August 12th.

[Specification of patent granted to Henry Highton, of Rugby, M. A., and Edward Highton, of Regents Park, Middlesex, C. E., for improvements in electric telegraphs. Patent dated January 25. 1848.]

This invention is described as consisting of fifteen parts, and the description is arranged under that number of heads. The following gives the substance of it, but the enrolled specification must be looked to for the exact details of this important invention:

The first part consists in producing a power for moving pointers, and for other purposes by means of horse shoe magnets, surrounded by multiplying coils of wires, and suspended on an axis. Several methods of using them are described, with the axis between the legs of the magnet, and at right angles to the plane in which the legs lie, so that the magnet shall oscillate in that plane; and, again, with the axis running through the middle of the magnet, and in the same plane as that of the legs of the magnet, so that they shall oscillate at right angles to that plane. There are described also several methods of com-

bining two or more horse shoe magnets together, and surrounding them with multiplying coils so as to unite their effects. By the employment of horse shoe magnets, thus arranged, all the effects capable of being produced by magnetic needles can be obtained.

The second part of the invention consists of a system of finger keys, for the purpose of producing the greatest possible number of variations in the manner of transmitting electrical currents along telegraphic wires, each single key forming one of those variations. The number of variations capable of being formed is described as represented by the number three, raised to the power of the number of line wires, minus one. Thus, the variations on three wires are 26—the exact number of the letters of the alphabet; so that by a set of the finger keys, marked with the letters of the alphabet, and combined with instruments afterwards described, a person has nothing to do but to set down before one of these instruments, and touch in succession the keys as required, at some distant station, the letters and words are either instantaneously printed, or exhibited to the eye. With four wires, and their corresponding keys, 80 different symbols may be exhibited, etc.

The third part of the invention consists of an instrument, for the purpose of completing the circuit of secondary batteries, which, as it requires to be often mentioned in the after part of the specification, the inventors call by the name of "perœnode," from two Greek words, signifying the completion of a circuit. The peculiarity of the instrument consists in its capability of completing, at a distant station, of either of two different circuits, without the possibility of any accidental confusion by the oscillation of the magnets used.

The fourth part consists in a method of arranging screens one behind another, so that when they are moved to the right or left, by the electrial power, they instantaneously show the required letter, or symbol, out of the whole number capable of being exhibited by the variations of the method of transmitting the currents along the number of wires used. They are used in combination with the keys before described—so that each key causes the screens so to move as to show at once the letter, or symbol, corresponding to the key. Thus, with three wires, and the corresponding system of keys, any one of the 26 letters of the alphabet may be instantly exhibited; and, as fast as a person puts his fingers to the keys, the corresponding letters are read off at a distant station. With four wires the number of symbol is increased to 80, as before.

The fifth part of the invention is a peculiar kind of escapement, adapted to producing the motion of paper, &c., for the purpose of telegraphic printing. The movement produced is an unequal step by step movement, of such a kind, that at the first step the paper may move so very small a distance, as to be virtually almost in a state of rest, while the type hammer strikes down upon it, and in this way a clear impression of the type is produced; whilst the second step, which takes place during the return of the type hammer, moves the paper the distance which is usually preserved between letters in printing. This invention enables any of the escapements known as locking escapements, to be used in telegraphic printing; and this, at the same time, also is secured a clear impression of the letters, and a perfect uniformity of distance between them.

The sixth part consist in a contrivance for producing greater rapidity in the use of a revolving disc, with a step by step motion, either for the exhibiting, or printing, of letters, or other symbols, and for remedying the great defect in such plans, as formerly used, which is, that one slip, or error, makes all the subsequent letters wrong, till the discs at the different stations are set right again by hand, so as to correspond with each other. This contrivance enables the disc, by the reversing of the electric current, to be thrown forward in its revolution, at one bound, to zero, or its starting point. Thus supposing that the word to be exhibited, or printed, begins with the letters B A, the disc is moved, by a step by step movement, to the letter B, which is shown, or printed; the current is then reversed, the step by step movement is thrown out of gear, and the disc completes its revolution to zero, by one bound, ready to be moved forword again by the step-by-step movement to the letter A; and whenever disc thus completes a revolution, which would be on an average, after every two letters, all the discs at the several stations would necessarly, by the movement itself, be set so as to correspond, and, consequently, one slip, or error, in any of the instruments, would entail no consequent errors—a defect in the instruments heretofore constructed, which has prevented their practical use; and it is plain also, that about half the time required for transmitting a message would be saved. Under the same head is discribed also the additional apparatus necessary for the printing letters moved forward—namely: the apparatus for driving the hammer down to strike the type upon the paper, holding the type whilst the hammer strikes it, and then allowing it to complete its full revolution, so as to commence again at the starting point, all being effected by the electrical power, conveyed along one single wire, and secondary batteries connected with it.

Under the head of the seventh part, is fully described in detail the method of combining the *perœnode*, and its secondary batteries and electromagnets, with the escapements described under the fifth and sixth heads; so as to exhibit to the eye any communication by means of the alphabet, inscribed around the edge of a disc—the whole being governed by means of a single telegraphic wire, extending from a distant station.

The eighth part of the invention is the printing, or stamping, by means of the power derived from secondary batteries. Several methods are shown in which this may be accomplished with different numbers of wires, and different apparatus connected with them. The first method shown is where three line wires and three *perœnodes* are used, working six type hammers, which, by their combinations, form a perculiar symbolical alphabet—illustration of which is afforded in the specification, but prevented from appearing here from want of space. A form of instrument is next described, of a rather more complicated kind, by which a communication may be printed, not in the symbolical, but in the ordinary, type. By the variations of the currents formed by wire *perœnodes*, any one of 26 type hammers are moved, so that the keys before described are touched in succession—the corresponding letters are instantly printed at a distant station. Other additional instruments are afterwards described, by which, through the means of *perœnodes*, and a step by step motion, communications may be printed in ordinary type, using one or two wires, the use of two very much increasing the rapidity of the printing—so that an average of only two or three step by step motions need be made for printing any required letter; but we could not make any of these plans intelligible in detail, without giving all the drawings which accompany the description in the specification. A corresponding method is also shown of exhibiting letters to the eye, where it is not required to print a communication, and where similarly only two or three step by step movement are required to show any required letter, or symbol.

The ninth part of the invention consists in application of the *perœnode* to Morse's American telegraph, by which means a telegraph, formed on that system, is able to do just double the work in the same time when compared with what it can perform, when worked on the ordinary system.

The tenth part of the invention describes a method of either exhibiting or printing a communication in the ordinary letters of the alphabet, by means of a cord, band, or chain, to which it is attached a scale with letters, or type, placed upon it. By means of three *perœnodes*, the cord is so shortened as to bring any required one of the letters, or type, into a proper position to be exhibited or printed; or the type and letters are disposed round the circumferance of a wheel, and the cord, or chain, passed round the wheel—and thus the shortening cord produces an angular motion in the wheel sufficient to bring any of the letters in the same way to some determinate place, for the purpose of being exhibited or printed.

The eleventh part of the invention consists in the use of a pedal for removing from, or putting into, a telegraph circuit an alarum apparatus, or for lifting from the liquid of a battery the metals employd; so that, on the operator leaving the instrument, the alarum cannot possible be left out of the circuit, nor the metals be left in the liquid of the battery—preventing thereby excessive waste of material, now caused by having the metals always immersed in the liquid.

The twelfth part is the employment in electric telegraphs of the solutions of the salts of the ammonia, for the exciting liquid in the batteries employed. The inventors recommend this form of battery for telegraphs, in consequence of their constantly uniform strength, for great lengths of time. They state, that the ammonia evolved on the nega-

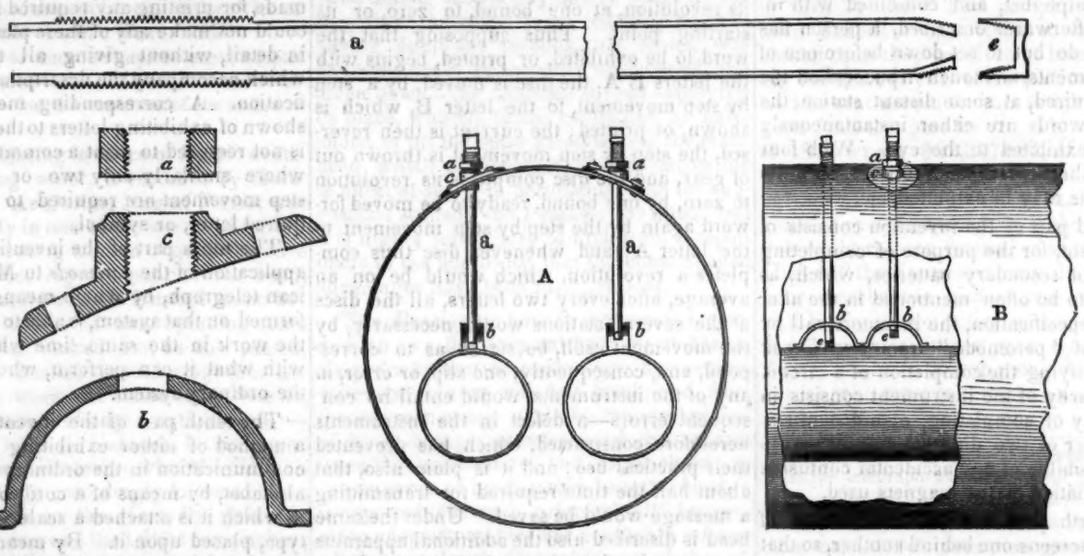
tive plates of the battery being soluble in water, does not form a coating of non-conducting substance on those plates, as is the case with hydrogen, in the batteries ordinarily used. They recommend, however, that the metals employed should be of considerable size, and be placed at considerable distance from each other.

The thirteenth part is a method of insulating suspended wires. Instead of the wires being carried outside the posts, they are carried through holes, bored either through the posts or through arms attached to them; and in the centre of these holes are placed heads with transverse slits in them, reaching from the circumference to the centre, and causing them to resemble in shape portions of spiralis. These slits enable the heads to be slipped on the wires, while it is impossible for the wires again to escape from them, without the head peing forced out from the holes, and turned round in a transverse direction to that of the wire. This arrangement prevents the necessity of any covering to the posts—the wood round the holes themselves forming a sufficient protection. Means are also shown of conducting away any water which may trickle down the posts in wet weather.

The fourteenth part is the use of metals, glazed or enamelled, in the form of roads, or tubes, or other shapes, for insulating suspended wires. It is merely an application to telegraphic purposes of the art of enamelling metals, which is now so extensively employed for many other purposes.

The fifteenth part consists in the use of a metallic tag, similar in form to the tag of a boot-lace, for the purpose of protecting wires covered with varnished silk, or cotton, &c., from the effects of friction at the points of suspension. The claims are 15 in number, and correspond with the several parts of the invention as decribed—the whole forming a new system of electrical telegraphs, in accordance with the advanced state of mechanical and electrical science, and calculated to take the place of the rough and infantile systems of telegraphing hitherto adopted.

A. STILLMAN'S PATENT SAFETY FUSE APPARATUS.



Steam Boiler Explosions, or Improved Safety Fuse.

We find in the *Eureka* for September 6th, a description, with illustrations, of a new mode of avoiding explosions of steam boilers, devised by Mr. Alfred Stillman, of the Novelty Works, New York. As we feel it a duty always to give publicity to all improvements calculated to prevent *accidents*, and injury to mankind, we give this a place in the Journal, in the hope that we may thereby aid in its introduction into general use, from which good will result, not only to those who travel, but also to the inventor and patentee, whom we have long known as an excellent mechanic and worthy man.

The expense of application is, we understand, but very small, and it should be introduced into all steam boilers, as we understand it is to be into those beautiful steamers, designed for the *Pacific*, or Panama and Oregon line—one of which, the California, is now nearly ready for her departure—having made her trial excursion on the 21st and 22d inst, with entire success and satisfaction to the builders of her machinery, Messrs. STILLMAN, ALLEN & Co., of the Novelty Works.

Improved Safety Fuse for Indicating Low water in Steam Boilers.—The following description of a very simple and ingenious invention for indicating want of water in boilers for generating steam, was lately patented by Mr. Alfred Stillman, of the Novelty Iron Works of this city. Trials made with it we understand have proved entirely satisfactory. We hope it will meet with that attention such improvements deserve. Inspection will convince any one that its cost must be entirely too small to make *that* an objection to an extensive trial.

To give our readers a clear idea of this apparatus, we have prepared cuts showing it both in detail, and as attached to a common flue boiler. (A) is the end view of the boiler with the head removed, and (B) is a side view with an opening in the shell, in each of which is shown the connections and internal arrangements. The same parts are referred to by the same letters in the several figures: (*a*) is an iron tube not exceeding an inch internal diameter, having the upper end enlarged externally: and with a screw cut upon it so that it may pass through the (*c*) which is firmly attached to the boiler, and also thro' a jam or tightening nut (*a*), this end of the tube projects beyond the screw, and is squared to receive a wrench. The orifice at the lower end is considerably contracted, so that whatever passes through it, will pass freely through the whole length. The outside of the lower end is slightly tapered, and has a fine screw cut upon it, upon which is screwed the cap (*e*) made of some fuseable metal, common soft solder is well adapted for this, when only a deficiency of water is to be indicated, and other compounds can be used when extra heat by over pressure is to be indicated. (*b*) is a string or guide attached to the flue to keep the tube from getting out of place, when screwing down upon the flue, but this may be dispensed with when the tube is not of a considerable length. Thus arranged, the tube is screwed firmly down, compressing the cap of fusible metal between the flue and the tube. A thread may then be wound over the tube at (*e*), and the nut (*a*) will make it tight.

It is evident that if the flue becomes heated from the absence of water, the cap (*e*) will melt, leaving the lower end of the tube open to allow the steam to blow through, and thus give the engineer timely notice of the dangar which must ensue if the fire is not instantly abated. This being done, the boiler can be supplied with water, the tubes stopped with a plug of wood, and the boiler and engine continue in operation as if nothing had happened. At the earliest opportunity after the steam is down, the tube may be removed from the boiler, a new cap screwed on, and the tube replaced as before. In boilers subject to long continued operation, as in sea going steamers, several of these tubes may be inserted, one of which only shall be in contact with the flue at a time.

Report of the Albany and Schenectady Rail-Road Company.

The Albany and Schenectady railroad company, in compliance with a resolution of the honorable the Assembly of the State of New York, passed the 3d day of February, 1843, submit the following report for the year 1847:

Length of road in operation, 16 miles 4,837 feet.

Cost of construction to January, 1848,		$1,473,253 11
Paid for building 17 eight wheel freight cars, 2 four wheel baggage cars, 1 20-ton locomotive engine, and our proportion 23 first class and emigrant passenger cars, etc		28,629 48
Paid for freight constructron		8,932 82
Paid for construction of engine house at Schenectady		7,198 62
Paid for construction of engine housa at Albany		3,202 10
		47,963 02
Paid for interest		26,314 42
dividends		25,000 00
repairs and operating the road.		60,310 42
Income from passengers	$110,051 67	
freight	46,591 67	
rents	1,293 96	
mail contract	1,950 00	
Total income for the year 1847		159,887 30
Received from all other sources		4,489 80
Number of through passengers		229,401
way passengers		none.
locomotives		6
passenger cars		1
freight cars		51
baggage cars		2

An undivided interest with the Utica and Schenectady, Syracuse and Utica, Auburn & Syracuse, and Auburn and Rochester railroad companies, say 17-251 in

55 Eight wheel passenger cars.
20 " emigrant cars.
14 " baggage cars.
4 " mail and baggage cars.
Number of machine shops, 1
" horses, 5

Average number of men in the employ of company, 101.

No. of miles run by passenger train, 49,674
" freight and all other trains, 22,821

Total number of miles run, 72,495

JOHN T. NORTON, Pres't.
E. FOSTER, Jr., Sec'y.

The Iron Trade & Railways of Gt. Britain.

The present progress of railways in Great Britain is greater than is generally supposed in this country. The calls have exceeded £3,000,000 a month, and were £19,913,872 during the first six months of 1848, and at the rate nearly of £40,000,000 a year, which naturally leads to the conclusion that the English iron trade will at an early day be again in a prosperous condition. We wish we could say as much for the iron business in this country—but we cannot anticipate much improvement here while rates rule so low in England. The time will, however, come, when the mining business, and the production of metals, will be in a prosperous and profitable condition.

The following remarks may be profitably read by those interested, as they are, to a certain extent, prophetic—we therefore give them from the London Mining Journal of July 15th.

Your remarks last week upon the prospects of the iron trade appear to prove conclusively the present depression to be but a temporary one, arising from the cause suggested in that article—namely, the deferring of ironwork and rails by railway companies, in consequence of the scarcity of money. Indeed, no man who knows the enormous length of railways now in the course of construction, as well in America and on the continent as here, can for a moment doubt that a period of high prices of iron must shortly enue—such as has never yet been exhibited in the annals of the trade. Having paid some attention to railways and the iron trade, perhaps the following statement of the make of iron, the number of railways in the course of construction, and the conclusions drawn from them, may not be uninteresting to parties connected either with railways, the iron trade, or the money interest—as all of those interests are greatly concerned in the development and solution of that wonderful question of social economy—the progress and completion of the railway system. The make of iron, as given by Mr. M'Culloch, in his last edition, published in 1847, was in—

1840, 1,396,400 tons.
1843, 1,300,000 "

Since that time no returns are made up, tho' beyond question, the make at present is something over the largest of those two periods—averaging, I should say, about 1,500,000 tons per annum. From 1830 to 1840 was a period of great prosperity in the iron trade, during which the make increased in a very rapid ratio (the exact figures may be found in the above author); and from 1840 to 1842 was a period of depression, when the make fell off as above shown, though not to the extent (considering the preceding rapid rise) that might fairly have been anticipated—showing that that the increased make was not, even with no extraordinary demand, much above the wants of the country; as, tho' some stocks were accumulated, the amount, comparatively, was not large—iron being too costly an article to be accumulated in very large quantities. The impetus to the trade in 1843 and 1844 was given by the railway acts passed in those years, and continued, without much variation, until the orders for rails were discontinued, at the latter end of last year, owing to the tightness of money; the railways only being able to extract from the grudging public sums immediately required for their first wants—namely, earthwork and formation. That the orders for rails were only delayed, must be evident at once from the returns furnished by you last week; and which, as they are all important to the question, I shall set forth a little more at large.

The railways completed in 1843, by returns compiled by order of parliament in 1845, were as follows;—

	Miles.	Am't of cap'l.	Av. per mile.
Great Britain	2069¼	£64,238,630	£31,048
Belgium	343	5,872,160	17,120
France	552	10,276,000	18,617
Germany	1997¼	15,500,000	7,500
America	3688	17,702,400	4,800
Total	8650	113,589,160	13,131

And by the same returns the railways constructed abroad in 1845, were,

	Miles.	Capital.
France	2410	£14,866,970
Germany	2347¼	18,000,000
America	5624	26,995,200
Total	10381¼	89,862,170

From the above returns, Sir Robert Peel's celebrated speech on the railway system, delivered in parliament, April 23, 1846, reported in the papers the next day, and in Hansard, and by parliamentary returns issued at the latter end of the session of 1846, the following are the number of railways for which acts have been passed in this country, from 1843 to the end of the session of 1846:—

No. of railways.	Capital.	Length in m.
1844....37	£17,986,000	3543
1845...118	60,484,000	3543
1846, In shares. 144,832,405		
To be borrowed 33,411,081		
	179,243,486	5974¼
Total	257,714,486	9516¼

In addition to these, many railways are authorised and constructing abroad, in Russia, Itlay, &c., and in the session 1847 a considerable of railway acts were obtained for railways and branches here, the returns for which I have not at the moment before me. It therefore, appears from these returns that there were, in 1845, 10,381¼ miles of railways actually in course of construction in America and on the continent; and that there have passed since 1843, Acts in this country for no less than 9517 miles of railway, involving the enormous capital of £257,714,486 sterling, and an amount of iron (calculating that each mile of railway requires 500, and, I believe, the real quantity required is nearer 600 tons) of no less a quantity than 4,758,500 tons.

A curious inquiry now remains as to the means we have at command to meet this extraordinary demand for gold and iron, which even now casts before the shadow of its coming magnitude; and, before touching upon this part of the subject, I cannot refrain from paying a well-deserved tribute to that most able of papers—*The Times*—which, when all others had run mad in the railway mania of 1845-46, alone stood forth alike from Parlament (the legitimate guide of the public), and the public itself, and denounced the mischief of such an inflated speculation with a withering force, which sheared it of its more dangerous proportions, and saved hundreds of thousands from the utter destitution in which the insane bubble would have inevitably involved them.

The calls during the last year, and this up to the present time, for English railways alone, have averaged more than £3,000,000 a month—the total calls for the six months of 1847 being £23,032,200; and for the first six months of this year, £19,913,872—(see the totals in the "Weekly Share List," and in *The Times*, of July 1, 1848)—consequently, the public is now expending about £40,000,000 a year in railways, and will, if this be continued, complete the lines authorised, since 1843, in about five years from the present time; and, looking upon the pressure upon the money market which has been present during the time these calls have been made,

I think, if the railways are content to proceed at that rate, that the means of the country are sufficient, in a percuniary point of view, to complete the host of railways now being constructed, without any serious pressure upon the trading interest; and, if rails were ordered, *pari passu*, with the amount expended per annum, it would, I consider, be possible for the ironmasters to supply the rails required in this graduul proportion—because, taking the average cost of railways at £30,000 per mile, £40,000,000 (the expenditure of each year) would complete 1330 miles, requiring, at 500 tons per mile, 666,500 tons of iron per annum. Now this, although a very large demand, additional to the ordinary demand, might perhaps, by great exertions on the part of the ironmasters, be supplied in due course, as the high prices, which must follow even a demand of this extent, would stimulate them to the utmost. If, however, instead of the orders for iron-work keeping pace with the rest of the outlay, they be left to the last moment, we shall then have a demand for 4,758,500 tons of iron—being the total amount required—pressing upon the market nearly at the same time. It would be utterly impossible to meet such a demand; for, if the whole of the make of the kingdom were applied to railways alone, it would take about three years to meet their requirements.

There is no remedy by an increased make; for it is impossible suddenly much to extend it, as the labor employed in mining and ironworks is skilled labor, which cannot be rapidly augmented, and the higher the wages the less iron is turned out by the same number of hands, as the men become almost masters; and, instead of working steadly as they do when wages are low, they devote two, and sometimes three, days a week to idleness and dissipation; neither is there a remedy to be looked to from abroad, as the foreign railways depend, in a considerable meaure, upon English iron for their completion, no other country being in a condition to offer them a supply of any moment.

If, therefore, there is any dependence whatever to be placed upon facts and figures, it follows, that at the rate at which the railways are even at present proceedings, the time must come when (if orders be delayed) much more iron will be required than can possibly be suppled. Whether the approach of that period be immdiate, or remote, will depend on the discretion of the railway people in ordering, or not ordering, their rails in proper time; anyway, however, as many lines must be, from time to time, completed, ready for the permanent way, it is certain the present low prices connot continue long. A state of matters of this sort soon cures itself by stimulating demand. Even already the signs of improvements are abroad; foreign orders (American and Russian) are increasing; the fear is not that things will not revive, but that they will revive too fast, and give birth to speculation. If that can be avoided, and the railways calls confined to the present dimensions, the next 10 years of the iron trade will tell a tale of prosperity, little dreamt of at the present moment.

Large Mass of Copper.

Large masses of copper are becoming quite common. The following description of one found in Cornwall, Eng., will match some of those found in the Lake Superior region. We may however rely up it, that a larger one will soon be found, and reported by some enterprising Yankee.

"We have during the past week, had an opportunity of inspecting one of the largest masses of native copper which we believe has ever been produced, or certainly, that has come under notice, in England. The slab to which we refer has been extracted from the Trenance Mine, situate four miles southwest of the Lizard Point, Mullion, in the country of Cornwall. The rock in which the lode is placed, from whence this "prill" has been obtained, is serpentine, very ponderous, and, we should imagine, containing metal, whether tin or other substance. The lode is about 4 feet big, and at the point from whence the slab under notice was obtained, is about 14 fathoms in depth, and would appear to be the same run of ore as that obtained at about 6 fathoms nearer surface, and reported in our columns some 12 months since. The slab is about 7 ft. 6 in. in length, and about 2 ft. 6 in., while the thickness varies from 4 to 12 inches, or giving an average of 8 in., forming part, as we are informed, of a slab, measuring at least 30 feet in length."—*London Mining Journal.*

RAILROAD IRON.

3000 TONS, ABOUT 60 LBS. PR lineal yard—deliverable early in the Spring, and of undoubted quality, can be contracted for at a low rate. For sale by

DAVIS, BROOKS & CO.,
68 Broad street.

New York, Sept. 16. 1848, 39tf

Also on hand—**1000** Tons best quality Rails.

TO CONTRACTORS.

SEALED proposals will be received at the office of the Lafayette and Indianapolis Railroad Co. in Lafayette, until the 11th day of October next, for the Grading, Masonry and Bridging of that part of said road lying between the summit south of Durkee's Run, near Lafayette, and Lebanon, in Boone county, about 34 miles. Also, for the wooden superstructure for the same, in a distinct bid.

Plans and specifications will be exhibited by the engineer. By order of the Board.

ALBERT S. WHITE, Pres't.

Lafayette, Aug. 17, 1848. 6t35

DEAN, PACKARD & MILLS,

MANUFACTURERS OF ALL KINDS OF

RAILROAD CARS,

SUCH AS

PASSENGER, FREIGHT AND CRANK CARS,

— ALSO —

SNOW PLOUGHS AND ENGINE TENDERS OF VARIOUS KINDS.

CAR WHEELS and AXLES fitted and furnished at short notice; also, STEEL SPRINGS of various kinds; and

SHAFTING FOR FACTORIES.

☞ *The above may be had at order at our Car Factory,*

REUEL DEAN,
ELIJAH PACKARD, } SPRINGFIELD, MASS.
ISAAC MILLS,

1y48

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicotts' Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of **20** years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street,
1y25 Philadelphia, Pa.

TO RAILROAD COMPANIES AND MANufacturers of railroad Machinery. The subscribers have for sale Am. and English bar iron, of al. sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE,

a45 N. E. cor. 12th and Market sts., Philad., Pa.

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY,

a45 President of the Newcastle Manuf. Co.

LAP—WELDED

WROUGHT IRON TUBES

FOR

TUBULAR BOILERS,

FROM 1 1-2 TO 8 INCHES DIAMETER.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,
Patentee.
28 Platt street, New York.

ENGINEERS' AND SURVEYERS'

INSTRUMENTS MADE BY

EDMUND DRAPER,

Surviving partner of

STANCLIFFE & DRAPER.

No 23 Pear street, below Walnut,
1y10 near Third, Philadelphia.

DIRECT ACTION ENGINES
FOR STEAMBOATS.
THE PATENT DOUBLE CYLINDERS,
AND ALSO
THE ANNULAR RING PISTON ENGINES,
of Messrs. Mauldslay, Sons & Field, of London, may be built in the United States, under license, which can be obtained of their agent,

THOMAS PROSSER, C. E.,
28 Platt street, New York.

May 6, 1848.

WILLIAM JESSOP & SONS,
CELEBRATED CAST-STEEL.

The subscribers have on hand, and are constantly receiving, from their manufactory,

PARK WORKS, SHEFFIELD,

Double Refined Cast Steel—Square, flat & octagon.
Best warranted Cast Steel—Square, flat & octagon.
Best Double and Single Shear Steel—Warranted.
Machinery Steel—Round.
Best and 2d gy. Sheet Steel—for Saws and other purposes.
German Steel—flat and sqr., "W. I. & S." "Eagle" and "Goat" Stamps.
Genuine "Sykes," L Blister Steel.
Best English Blister Steel, etc., etc., etc.

All of which are offered for sale on the most favorable terms, by WM. JESSOP & SONS,
91 John Street, New York.

Also by their Agents—
Curtus & Hand, 47 Commerce St., Philadelphia.
Alex'r Fullerton, & Co., 119 Milk St., Boston.
Stickney & Beatty, South Charles St., Baltimore.
May 6, 1848.

NEW PATENT CAR WHEELS.

THE SUBSCRIBERS ARE NOW MANUfacturing Metallic Plate Wheels of their invention, which are pronounced by those that have used them, a superior article, and the demand for them has met the most sanguine expectations of the inventors. Being made of a superior quality of Charcoal Iron, they are warranted equal to any manufacture.

We would refer Railroad Companies and others to the following roads that have them in use. Hartford and New Haven, Connecticut River Railroad, Housatonic, Harlem, Farmington, and Stonington.

SIZER & CO.
January 29, 1848. tf Springfield, Mass.

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by A. & G. RALSTON
Mar. 20tf 4 South Front St., Philadelphia.

TO MACHINISTS & MANUFACTURERS. The Subscribers have taken the READING CAR AXLE MANUFACTORY—and are prepared to execute orders for *Axles of every description*, and Wrought Iron Shafts for Steamboats, Mills, etc., made from superior material, at short notice. Address *Reading, Pa.*

ANDREW TAYLOR & CO.
August 5, 1848—3m*

RAILROAD IRON--SHEET IRON--BRASIER'S RODS—HOOPS—SCROLL—BANK'S BEST—& OTHER GOOD MAKES OF ENGLISH IRON.

100 Tons Railroad Iron—Staffordshire make—56 pounds per yard—shipped from Liverpool 20th July, expected to land on wharf from 10th to 20th September.

Also have Invoices of Sheet Iron, Brasier's Rods, Hoops, Scroll, and Band Iron, Banks best, and other good makes of English Rolled Iron, to arrive, suitable for Railroad Axles, etc., etc., equal in quality to American Rolled Iron. I have agency of several best makers in England and Wales, and can import for Railroad Companies, and others, on best terms, and at much less prices than they can be supplied from American Mills.

DAVID W. WETMORE,
218 Water street.
New York, Sept. 9, 1848. 6w*

MATTEWAN MACHINE WORKS.

THE MATTEWAN COMPANY HAVE added to their Machine Works, an extensive LOCOMOTIVE ENGINE department, and are prepared to execute orders for *Locomotive Engines* of every size and pattern—also, *Tenders, Wheels, Axles*, and other Railroad Machinery, to which they ask the attention of those who wish such articles, before they purchase elsewhere.

STATIONARY ENGINES, BOILERS, ETC., Of any required size or pattern, arranged for driving *Cotton, Woollen*, or *other* Mills, can be had on favorable terms, and at short notice.

COTTON AND WOOLLEN MACHINERY, Of every description, embodying all the modern improvements, second in quality to none in this or any other country, made to order.

MILL GEARING,
Of every description, may be had at short notice, as this company has probably the most extensive assortment of patterns in this line, in any section of the country, and are constantly adding to them.

TOOLS.
Turning Lathes, Slabbing, Planing, Cutting, and *Drilling* Machines, of the most approved patterns, together with all other tools required in machine shops, may be had at the Mattewan Company's Shops, Fishkill Landing, or at

39 Pine Street, New York.
WM. B. LEONARD, *Agent.*

FAIRBANKS' RAILROAD SCALES.

THE Subscribers are prepared to construct at short notice, *Railroad* and *Depot Scales*, of any desired length and capacity. Their long experience as manufacturers—their improvements in the construction of the various modifications, having reference to strength, durability, retention of adjustment, accurracy of weight and despatch in weighing—and the long and severe tests to which their scales have been subjected—combine to ensure for these scales the universal confidence of the public.

No other scales are so extensively used upon Railroads, either in the United States or Great Britain; and the manufacturers refer with confidence to the following in the United States.

Eastern Railroad,	Boston and Maine R. R.,
Providence Railroad,	Providence & Wor. R.R.,
Western Railroad,	Concord R. R.,
Old Colony Railroad,	Fitchburg R. R.,
Schenectady Railroad,	Syracuse and Utica R. R.,
Baltimore & Ohio Road,	Baltimore & Susq. R. R.,
Phila. & Reading Road.	Schuylkill Valley R. R.,
Central (Ga.) Railroad.	Macon and Western R.R.,

New York and Erie Railroad;
and other principal Railroads in the Western, Middle and Southern States.

E. & F. FAIRBANKS & CO.
St. Johnsbury, Vt.
Agents { FAIRBANKS & Co., 81 Water st. N. York.
A. B. NORRIS, 196 Market st., Philad.
April 22, 1848. 1y*17

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, *Agent.*

Albany Iron and Nail Works, Troy, N. Y.

The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

THE SUBSCRIBERS ARE PREPARED TO execute orders at their Phœnix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK & CO.,
Philadelphia.
ROBERT NICHOLS, Agent,
26tf No. 79 Water St., New York.

CHILLED RAILROAD WHEELS.—THE undersigned are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of Spokes or Disks, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,
Willow St. below 13th,
Nov. 10, 1847. [tf.] Philadelphia, Penna.

THE SUBSCRIber has on hand a good assortment of his best Leveling and Surveying Instruments, among them his improved Compass for taking angles without the needle—also Bells, suitable for Churches, Railroad Depots, etc. ANDREW MENEELY.
West Troy, May 12, 1847. 1y*21

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, *Agent*

Spikes are kept for sale, at Factory Prices, by & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Jarviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.
ja45

TO LOCOMOTIVE AND MARINE ENgine Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 1tf

CHILLED RAILROAD WHEELS.—THE undersigned, the *Original Inventor* of the *Plate Wheel* with solid hub, is prepared to execute all orders for the same, promptly and faithfully, and solicits a share of the patronage for those kind of wheels which are now so much preferred, and which he originally produced after a large expenditure of time and money.

A. TIERS.
Point Pleasant Foundry,

He also offers to furnish Rolling Mill Castings, and other Mill Gearing, with promptness, having, he believes, the largest stock of such patterns to be found in the country. A. T.

Kensington, Philadelphia Co., }
March 12, 1848. } 11tf

NORWICH CAR FACTORY,
NORWICH, CONNECTICUT.

AT the head of navigation on the River *Thames*, and on the line of the *Norwich and Worcester Railroad*, established for the manufactory of

RAILROAD CARS,
OF EVERY DESCRIPTION, VIZ:
PASSENGER, FREIGHT AND HAND CARS,
ALSO, VARIOUS KINDS OF
ENGINE TENDERS AND SNOW PLOUGHS.
TRUCKS, WHEELS & AXLES

Furnished and fitted at short notice.

Orders executed with promptness and despatch.

☞ Any communication addressed to
JAMES D. MOWRY,
General Agent,
Norwich, Conn.,
Will meet with immediate attention. 1y8

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, *Civil Engineer,* Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railrord, has now run 4 seasons, and is still in good condition. 92v1 1y

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

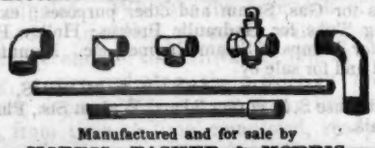
Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee G. A. NICOLLS,
ja45 *Reading, Pa.*

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ¼ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T's, L's, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



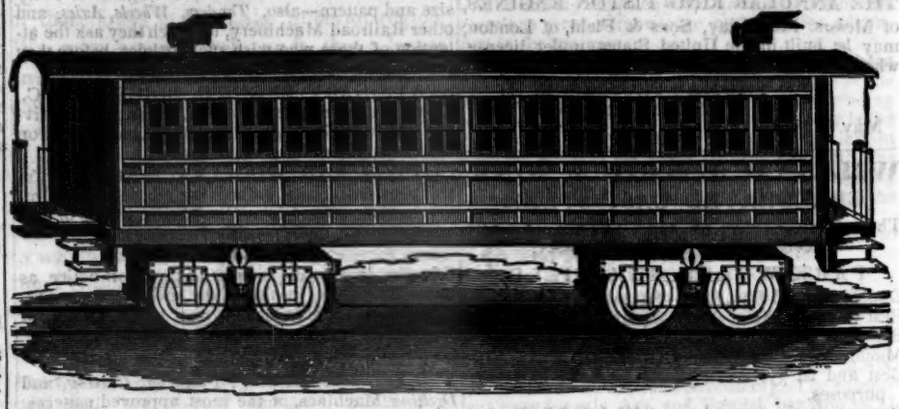
Manufactured and for sale by
MORRIS, TASKER & MORRIS.
Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,
142 Front street, New York.

☞ Orders for the above will be received and promptly attended to at this office. 32 1y

DAVENPORT & BRIDGES'
CAR WORKS, CAMBRIDGEPORT, MASS.



Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

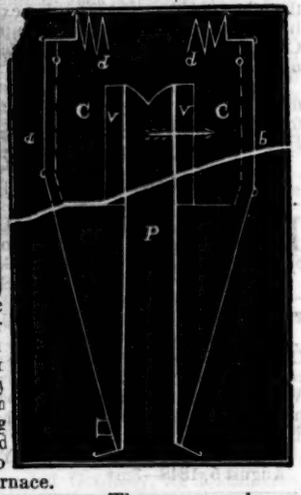
Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes. 10*tf*

THE SUBSCRIBER IS PREPARED TO execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc. PETER COOPER,
1y10 17 Burling Slip, New York

RAILROAD IRON, PIG IRON, ETC.

600 Tons of T Rail 60 lbs. per yard.
25 Tons of 2½ by ½ Flat Bars.
25 Tons of 2½ by 9-16 Flat Bars.
100 Tons No. 1 Gartshrorie.
100 Tons Welsh Forge Pigs.
For Sale by A. & G. RALSTON & CO.
No. 4 So. Front St., *Philadelphia*

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.



TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year, on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public The form is such that a rotary motion is imparted to the heated air smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendant Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendant Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

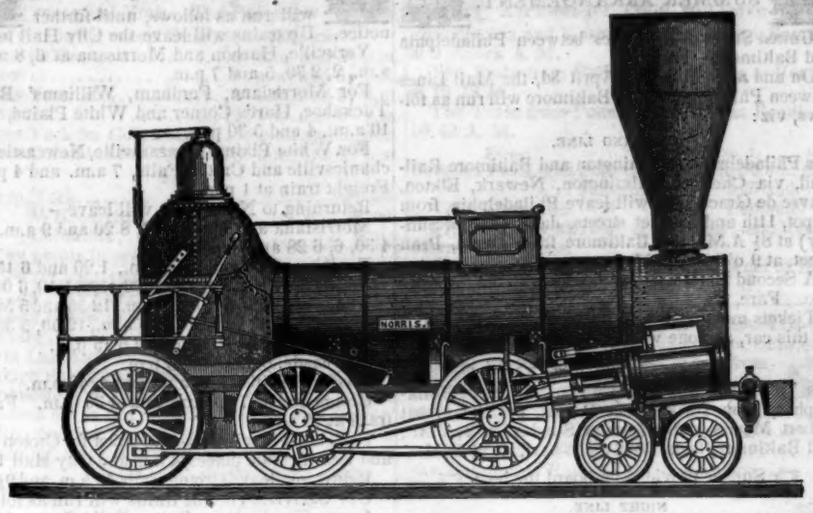
Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city, will be promptly executed. FRENCH & BAIRD.

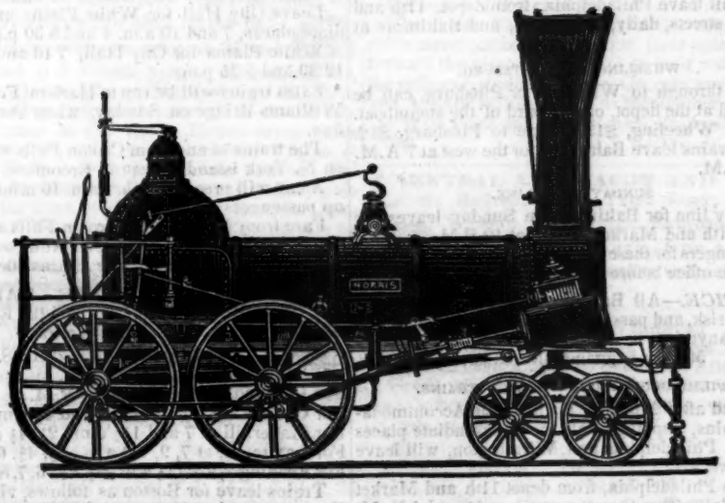
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. *Philadelphia, Pa., April 6, 1844.*

*** The letters in the figures refer to the article given in the *Journal* of June, 1844. ja45

NORRIS' LOCOMOTIVE WORKS.

BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,





THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size.

Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusunl advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS' BROTHERS.

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed beinglarge, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery

of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
Paterson, N. J., or 60 Wall street, N. York.

PIG AND BLOOM IRON.—THE SUBSCRIbers are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniatta Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,
12tf Vine St. Wharf, Philadelphia.

T. & C. WASON, Manufacturers of every style of Freight and Baggage Cars.—Forty rods east of the depot, Springfield, Mass.

Running parts in sets complete, Wheels, Axles, or any part of cars furnished and fitted up at short notice and in the best manner.

N.B. Particular attention paidto the manufacture of the *most improved* Freight Cars. We refer to the New Haven, Hartford and Springfield; Connecticut River; Harlem; Housatonic, and Western, Mass., Railroads, where our cars are now in constant use.

Dec.25, 1847.—1y.

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1¼ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, *Agent*,
1y Albany Iron and Nail Works,

IMPORTANT TO ENGINEERS, CONtractors, and Surveyors.—The Engineer's, Contractor's and Surveyor's Pocket Table Book, by J. M. Scribner, A. M., 264 pages, 24 mo; tuck binding, with gilt edge. Published by Huntington & Savage, 216 Pearl street, New York.

The above work comprises Logarithms of Numbers, Logarithmic Sines and Tangents, Natural Sines and Natural Tangents; the Traverse Table, and a full and extensive set of tables, *exhibiting at one view the number of cubic yards contained in any embankment or cutting, and for any base or slope of sides usual in practice.* Besides these essential tables, the work comprises 50 pages more of Mensuration, Tables, Weights of Iron, Strength of Materials, Formulas, Diagrams, etc., for laying out railroads, canals and curves; much of which has never before been offered to the public, and all dispensable to the engineer. This book will prove a great saving of time, and will enable the new beginner to furnish results as accurately (and with much greater rapidity) as the most experienced in the profession without its aid. The tables of Logarithms, etc., have been carefully corrected and compared with *different* editions of the same tables; and *all* the tables throughout the book have been read carefully by proofs four times; hence the most implicit confidence may be placed in their correctness.

Also, *Scribner's Engineer's and Mechanic's Companion*, new edition, 264 pages, enlarged, with 35 pages of entirely new matter, and much improved throughout.

It is believed these books are so well adapted to suit the above professions, that they cannot *afford* to do without them, and that they will aid in rewarding well directed mental labor.

Both are for sale by all the principal booksellers throughout the United States and Canada.

WESTERN RAILROAD.—ON AND AFter Monday, April 5, 1847, the passenger

trains will leave daily, Sundays excepted, as follows:

Boston at 8 a. m. and 4 p. m. for Albany.

Albany at 7 1-4 a. m. and 5 p. m. for Boston.

Springfield at 8 1-2 a. m. and 1 p. m. for Albany

Springfield at 8 1-2 a. m. and 1 1-2 and 3 p. m. (or on arrival of the train from New York) for Boston.

Day line to New York, via Springfield.—The steamboat train leaves Boston at 6 a. m., and arrives in New York at 7 p. m., by the steamboats Traveller, New York, or Champion. Returning, leaves New York at 6 1-4 a. m., and arrives in Boston at 7 p. m.

Night line to New York.—Leaves Boston at m., and arrives in New York at 5 a. m.

Albany and Troy.—Leave Boston at 8 a. m., Springfield at 1 p. m., and arrive in Albany at 6 p. m.; or, leave Boston at 4 p.m., Springfield next morning at 8 1-2, and arrive in Albany at 1 1-2 p.m.

The Troy trains connect at Greenbush.

The trains for Buffalo leave at 7½ a.m. and 7 p.m.

For Northampton, Greenfield, etc.—The trains of the Connecticut River Railroad leave Springfield at 8 1-4 a.m., 1 and 3 p.m., and passengers proceed directly on to Brattleboro', Windsor, Bellows Falls, Walpole, Hanover, Haverhill, etc.

For Hartford.—The trains leave Springfield on the arrival of the trains from Boston.

The trains of Pittsfield and North Adams Railroad leave Pittsfield on the arrival of the trains from Boston.

N. B.—No responsibility assumed for any baggage by the passenger trains, except for wearing apparel not exceeding the value of fifty dollars, unless by special agreement.

JAMES BARNES, Sup't and Eng'r.
.C A. SEAD, Agent, 27 State street, Boston.

GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO DALTON, 100 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga.—32 miles from Chattanooga, Tenn.

RATES OF FREIGHT.		Between Augusta and Dalton. 271 miles.	Between Charleston, and Dalton. 408 miles.
1st class.	Boxes of Hats, Bonnets, and Furnature, per cubic foot	$0 18	$0 28
2d class.	Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc	0 40	0 65
	Cotton, per 100 lbs	0 45	0 75
	Molasses, per hogshead.	8 50	13 50
	" " barrel	2 50	4 25
	Salt per bushel	0 18	
	Salt per Liverpool sack	0 65	
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight payable at Dalton.

F. C. ARMS,
Sup't. of Transportation.

Augusta, Ga., July 15, 1847. 44•1y

THE WESTERN AND ATLANTIC

Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Rail road.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
Chief Engineer.

Atlanta, Georgia, April 16th, 1846 1v1

CENTRAL RAILROAD—FROM SAVANnah to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, $8 00. Freight—

On weight goods generally... 50 cts. per hundred.
On measurement goods ..... 13 cts. per cubic ft.
On brls. wet (except molasses and oil) ..... $1 50 per barrel.
On brls. dry (except lime) ... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery ..... 40 cts. per hundred
On hhds. and pipes of liquor, not over 120 gallons ..... $5 00 per hhd.
On molasses and oil ..... $6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE,
y40 Gen'l. Sup't. Transportation.

PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1848.

SUMMER ARRANGEMENT.

United States Mail Lines between Philadelphia and Baltimere. Fare, $3.

On and after Monday, April 3d, the Mail Lines between Philadelphia and Baltimore will run as follows, viz:

MORNING LINE.

Per Philadelphia, Wilmington and Baltimore Railroad, via Chester, Wilmington, Newark, Elkton, Havre de Grace, etc., will leave Philadelphia, from Depot, 11th and Market streets, daily (except Sunday) at 8½ A.M., and Baltimore from Depot, Pratt street, at 9 o'clock, A.M.

A Second Class Car will be run with the morning line. Fare, $2.

Tickets must positively be procured at the Office for this car, as none will be sold by the conductors.

AFTERNOON LINE.

Via Newcastle and Frenchtown, will leave Philadelphia, from Dock Street Wharf, per Steamboat Robert Morris, daily (except Sunday) at 2½ P.M., and Baltimore, from Bowly's Wharf, at 2½ P.M.—

☞ Supper provided on board the boat. ☜

NIGHT LINE.

Per Philadelphia, Wilmington and Baltimore Railroad, will leave Philadelphia, from depot, 11th and Market streets, daily, at 11 P.M., and Baltimore at 8 P.M.

WHEELING AND PITTSBURG.

Tickets through to Wheeling or Pittsburg, can be procured at the depot, or on board of the steamboat. Fare to Wheeling, $13. Fare to Pittsburg, $12.

The trains leave Baltimore for the west at 7 A.M. and 4 P.M.

SUNDAY MAIL LINE.

The only line for Baltimore on Sunday leaves the depot, 11th and Market streets, at 10 P.M.

Passengers for these lines must procure their Tickets at the office before taking their seats in the cars.

NOTICE.—All Baggage by these lines is at its owner's risk, and passengers are expressly prohibited taking anything as baggage, except their wearing apparel. 50 lbs. baggage allowed each passenger.

WILMINGTON ACCOMMODATION TRAINS.

On and after Monday, April 3d, the Accommodation Trains, stopping at all the intermndiate places between Philadelphia and Wilmington, will leave as follows, viz:

Leave Philadelphia, from depot 11th and Market streets, daily (Sundays excepted) at 1½ and 4 P. M.

Leave Wilmington, from the depot, Water street, daily (except Sunday) at 7½ A.M. and 4½ P.M.

The Freight Accommodation Train will leave Philadelphia at 7 P.M. and Wilmington at 7 P.M.

The Mail Trains stopping at Chester and Wilminton, leave Philadelphia at 8½ A.M. and 10 P.M. Wilmington at 1 o'clock, P.M., and 12 midnight. Fare to Wilmington, 50 cts. Fare to Chester, 25 cts.

G. H. HUDDELL, *Agent.*

March 23, 1848. 1y15

☞ NOTICE. ☜

RAILROAD LINE BETWEEN ALBANY AND BUFFALO, N. Y.

1848.—SCHEDULE FOR RUNNING.—1848.

Going west.		1st train.	2d train.	3d train
Leaves	Albany	7½ A.M.	2 P.M.	7 P.M.
Pass	Utica	1 P.M.	7½ P.M.	1½ A.M.
Pass	Syracuse	4½ P.M.	11 P.M.	5 A.M.
Pass	Auburn	6½ P.M.	1 A.M.	7 A.M.
Pass	Rochester.	12½ M.	N. 7 A.M.	1 P.M.
Arrives at.	Buffalo	5½ A.M.	12 M.	6 P.M.
Going east.		**1st train.**	**2d train.**	**3d train.**
Leaves	Buffalo	7½ A.M.	2 P.M.	7 P.M.
Pass	Rochester.	12½ M.	7 P.M.	12 M.N.
Pass	Auburn	6½ P.M.	1 A.M.	6 A.M.
Pass	Syracuse	8½ P.M.	3½ A.M.	8 A.M.
Pass	Utica	12 M.N.	7 A.M.	11½ A.M.
Arrives at.	Albany	5 A.M.	12 M.	4½ P.M.

Adopted February 18, 1848, in convention at Albany. (Copy.)

T. Y. HOWE, JR.,
Secretary of the Convention.

NEW YORK & HARLEM RAILROAD

CO.—Summer Arrangement.—On and after Tuesday, June 1st, 1847, the cars will run as follows, until further notice. Up trains will leave the City Hall for—

Yorkville, Harlem and Morrisana at 6, 8 and 11 a.m., 2, 2 30, 5 and 7 p.m.

For Morrisiana, Fordham, Williams' Bridge, Tuckahoe, Hart's Corner and White Plains, 7 and 10 a.m., 4 and 5 30 p.m.

For White Plains, Pleasantville, Newcastle, Mechanicsville and Croton Falls, 7 a.m. and 4 p.m. Freight train at 1 p.m.

Returning to New York, will leave—

Morrisiana and Harlem, 7, 8 20 and 9 a.m., 1, 3, 4 30, 6, 6 28 and 8 p.m.

Fordham, 8 08 and 9 15 a.m., 1 20 and 6 15 p.m.

Williams Bridge, 8 and 9 08 a.m., 1 10, 6 08 p.m.

Tuckahoe, 7 38 and 8 25 a.m., 12 55 and 5 52 p.m.

White Plains, 7 10 and 8 35 a.m., 12 50, 5 35 p.m.

Pleasantville, 8 15 a.m. and 5 15 p.m.

Newcastle, 8 a.m. and 5 p.m.

Mechanicsville, 7 48 a.m. and 4. 48 p.m.

Croton Falls, 7 30 a.m. and 4 30 p.m. Freight train at 10 a.m.

Freight train will leave 32d street for Croton Falls and intermediate places, 4 a.m and City Hall 1 p.m.

Returning, leave Croton Falls 10 a.m. and 9½ p.m.

ON SUNDAYS, the trains will run as follows:

Leave City Hall for Croton Falls, 7 a.m, 4 p.m.

Croton Falls for City Hall, 7 30 a.m., 4 30 p.m.

Leave City Hall for White Plains and intermediate places, 7 and 10 a.m. 4 and 5 30 p.m.

White Plains for City Hall, 7 10 and 8 35 a.m., 12 30 and 5 35 p.m.

Extra trains will be run to Harlem, Fordham and Williams Bridge on Sunday, when the weather is fine.

The trains to and from Croton Falls will not stop on N. York island, except at Broome st. and 32d st.

A car will preceed each train 10 minutes to take up passengers in the city.

Fare from New York to Croton Falls and Somers $1, to Mechanicsville 87½c., to Newcastle 75c., to Pleasantville 62½c. to White Plains 50c. 25tf

BOSTON AND MAINE RAILROAD.

Upper Route, to Portland and the East.

Summer Arrangement.

Commencing July 3d, 1848.

Trains leave Boston as follows, viz:

For Portland at 7 A.M. and 2½ P.M.
For Great Falls at 7 a.m., 2½ and 4½ p.m.
For Haverhill at 7 and 11½ a.m., 2½, 4½ and 6 p.m.
For Lawrence, at 7, 9, 11½ a.m., 2½, 4½, 6, 7 p.m.
For Reading 7, 9 & 11½ a.m., 2½, 4½, 6, 7, 8½ & 10 p.m

Trains leave for Boston as follows, viz:

From Portland at 7½ a.m., and 3 p.m.
From Great Falls at 6½ and 9½ a.m., and 4½ p.m.
From Haverhill at 7, 8½ and 11 a.m., 3½ and 6½ p.m.
Lawrence at 6½, 7½, 8½, 11½ a.m., 12½, 3½, 6½, p.m.
Reading at 6, 6½, 7½, 9½, 11½ a.m., 1, 4, 7½, 9, 10 p.m.

MEDFORD BRANCH TRAINS.

From Boston at 6·50, 9½ a.m., 12½ 2½, 5½, 7, 10 p.m.
From Medford at 6·10, 7½, 10½, a.m., 2, 4, 6½, 9½ p.m.

STEAMBOAT TRAINS.

For BANGOR, every Monday, Wednesday and Friday, at 5 p.m.

For HALLOWELL, every Tuesday, Thursday & Saturday, at 7 a.m.

The Depot in Boston is on Haymarket Square.

CHAS. MINOT, *Sup't.*

Boston, July 3d, 1848.

BOSTON AND PROVIDENCE RAIL-

road. Summer Arrangement. On and after Monday, April 3, 1848, the Trains will run as follows:

Steamboat Train—Leaves Boston daily, except Sunday, at 5 o'clock p.m.

Accommodation Trains—Leave Boston at 7 and 11 a.m. and 4 p.m., and Providence at 7½ and 11 a.m. and 4½ p.m.

Pawtucket Train—Leaves Boston at 4 p.m. and Pawtucket at 7, 10 a.m.

Dedham Trains—Leave Boston at 8 a.m., and 12½ 3½, 6½ and 9 p.m. Leave Dedham at 7 and 9½ a.m. and 2½, 5½ and 8 p.m.

Stoughton Trains—Leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7, 10 a.m. and 3½ p.m.

WM. RAYMOND LEE, *Sup't.*

BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:

Leaves Baltimore at.....9 a.m. and 3½ p.m.
Arrives at.....9 a.m. and 6½ p.m.
Leaves York at.....5 a.m. and 3 p.m.
Arrives at.....12½ p.m. and 8 p.m.
Leaves York for Columbia at..1½ p.m. and 8 a.m.
Leaves Columbia for York at..8 a.m. and 2 p.m.

FARE.

Fare to York.....$1 50
" Wrightsville..... 2 00
" Columbia..... 2 12½

Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg..... $9
Or via Lancaster by railroad..... 10
Through tickets to Harrisburg or Gettysburg.. 3
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5½ p.m.
Returning, leaves Owing's Mills at.....7 a.m.

D. C. H. BORDLEY, *Sup't.*
31 1y Ticket Office, 63 North st.

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, conneting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coachcs between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points $7, and 4 cents per mile for less distances. Fare through to Wheeling $11 and time about 36 hours, to Pittsburgh $10, and time about 32 hours. Through tickets from Philadelphia to Wheeling $13, to Pittsburgh $12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare $1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

NORWICH AND WORCESTER RAILROAD. Summer Arrangement.—1848.

Accommodation Trains daily, (Sundays excepted.)

Leave Norwich, at 6 a. m., 12 m. and 5 p. m.
Leave Worcester, at 6½ and 10 a. m., and 4½ p. m. connecting with the trains of the Boston and Worcester and Providence and Worcester railroads.

New York & Boston Line. Railroad & Steamers. Leave New York and Boston, daily, Sundays excepted, at 5 p.m.—At New York from pier No. 1 N. River.—At Boston from corner Lincoln and Beach streets, opposite United States Hotel. The steamboat train stops only at Framingham, Worcester, Danielsonville and Norwich.

Freight Trains leave Norwich and Worcester daily, Sundays excepted.—From Worcester at 6½ a. m., from Norwich at 7 a.m.

☞ *Fares are Less when paid for Tickets than when paid in the Cars.* ☜

32 1y S. H. P. LEE, Jr., Sup't.

RAILROAD IRON—2500 TONS HEAVY H Rail, now landing, and expected shortly to arrive, for sale on most favorable terms by

DAVIS BROOKS & CO.
July 19th, tf 68 Broad street, New York.

PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for

1848.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,	92	$3·50 and	$3·00
" " Reading,	58	2·25 and	1·90
" Pottsville "	34	1·40 and	1·20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 8tf

SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily..... $26 50
Fare through from Charleston to Huntsville, Decatur and Tuscumbia..... 23 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

r25 JOHN KING, Jr, *Agent.*

CENTRAL AND MACON AND WESTern Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

	Miles.
Savannah to Macon—Central Railroad	190
Macon to Atlanta—Macon and Western	101
Atlanta to Oothcaloga—Western and Atlaniic	80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings	$0 50	$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot	0 20 pr. 100 lbs.	35
Crockery, per cubic foot	0 15 " "	35
Molasses and Oil, per hhd., (smaller casks in proportion).	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each	1 25	1 50
Ploughs, (small,) and Wheelbarrows	0 80	1 05
Salt, per Liverpool Sack	0 70	0 95

Passage—Savannah to Atlanta, $10; Children, under 12 years of age, half price, Savannah to Macon, $7.

☞ Goods consigned to the subscriber will be forwarded free of Commissions.

☞ Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, *Forwarding Agent, C. R. R.*
Savannah, Aug. 15th, 1846. 1y34

NEW YORK ANDERIE RAILROAD LINE. SUMMER ARRANGEMENT. For passengers, twice each way daily, (except Sunday,) leave New-York from the foot of Duane St. at 7 o'clock, A. M. and at 4 o'clock, P. M. by steamboat, for Piermont, thence by cars to Ramapo, Monroe, Chester, Goshen, Middletown, Otisville, and the intermediate stations.

The return trains for New York will leave Otisville at 6 30, A. M. and 4 15, P. M.; Middletown at 7 A. M. and 4 40, P. M.; Goshen at 7 22, A. M. and 5 3, P. M.; Chester at 7 35, A. M. and 5 18, P. M.

Fare between New York and Otisville, $1 50; way-fare in proportion.

FOR MILK—Leave Otisville at 5½ o'clock, morning and evening.

FOR FREIGHT—The barges "Samuel Marsh and "Henry Suydam, Jr." will leave New York (from the foot of Duane St.) at 5 o'clock, P. M. daily (except Sundays.)

No freight will be received in New York after 5 o'clock, P. M.

Freight for New York will be taken by the trains eaving Otisville at 10½ o'clock, A. M.; Middletown at 11½, A. M.; Goshen at 12½, P. M.; Chester at 1 o'clock, P. M., etc., etc.

For farther particulars, apply to J. F. CLARKSON, Agent, corner of Duane and West Sts., New York, or to S. S. POST, Superintendent Transportation, Piermont.

24tf H. C. SEYMOUR, Sup't.

LITTLE MIAMI RAILROAD COMPANY. Fall and Winter Arrangement, 1847. On and after Monday, September 20th, until further notice, a Passenger train will run as follows:

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Yellow Springs, and Springfield. Returning, will leave Springfield at 4½ a.m. Upward train arrives at Springfield at 2½ p.m. Downward train arrives at Cincinnati at 10½ a.m.

Freight trains will run each way daily.

Messrs. Neil, Moore & Co. are running the following stage lines in connection with the road:

A daily line from Xenia to Columbus and Wheeling, carrying the great Eastern mail.

Daily lines from Springfield to Columbus, Zanesville and Wheeling. Also to Urbana and Bellefontaine.

A line of Hacks runs daily in connection with the train between Deerfield and Lebanon.

Passengers leaving for New York and Boston, arrive at Sandusky city via Urbana, Bellefontaine & the Mad River and Lake Erie railroad, in 27 hours, including several hours' sleep at Bellefontaine. To the same point via Columbus, Delaware, Mansfield and the Mansfield and Sandusky city railroad, is 33 hours. Distance from Cincinnati to Springfield by railroad.....84 miles.

From Springfield to Bellefontaine by stage, over a good Summer road.....32 "
From Bellefontaine to Sandusky city by railroad.....102 "

FARE—From Cincinnati to Lebanon....$1 00
" " " Xenia..... 1 50
" " " Springfield.. 2 00
" " " Columbus... 4 00
" " " Sundusky city 7 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

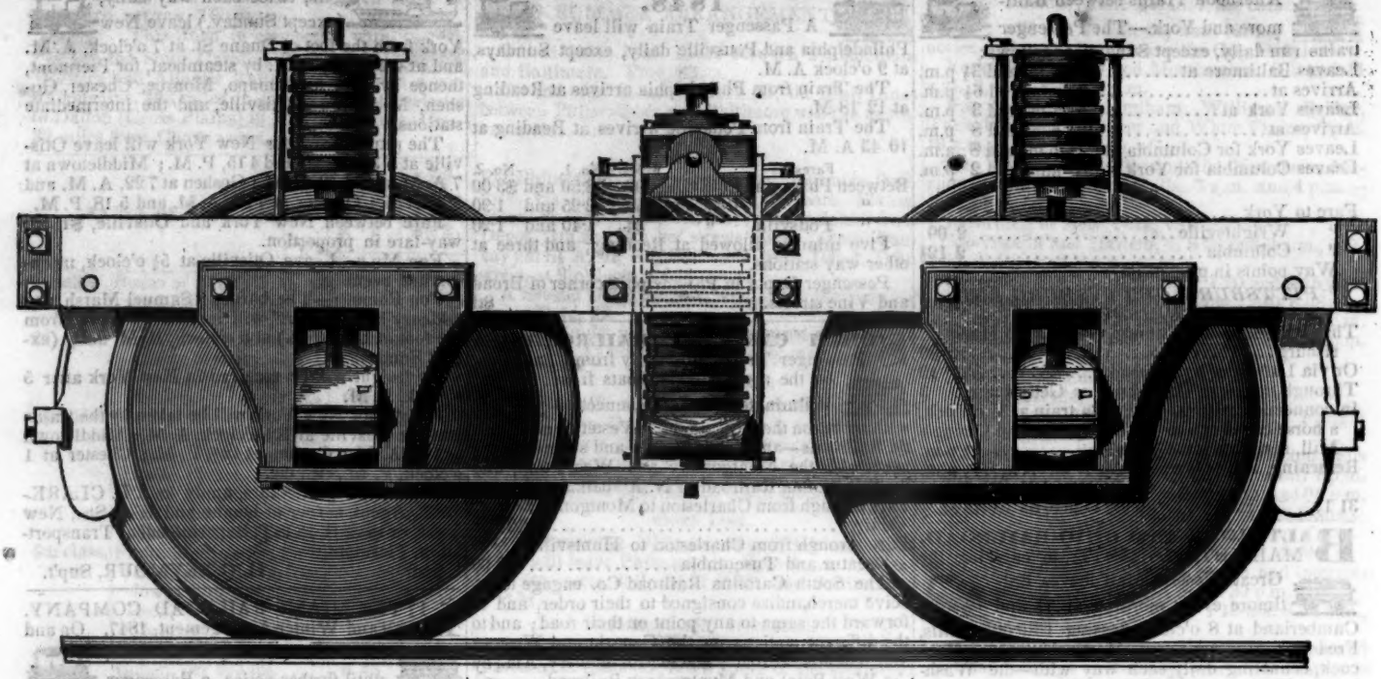
Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every $500 in value over that amount.

47tf W. H. CLEMENT, *Sup't.*

VULCANIZED INDIA RUBBER CAR SPRINGS.



THE NEW ENGLAND CAR COMPANY have introduced these Springs, and they are now in operation on every Railroad terminating in Boston, and several others in New England and the Middle States. Their qualities are well understood, or may be readily ascertained by every person interested to know them. They require no recommendation from the Company. The only known compound of India Rubber good for anything for this purpose is the Vulcanized India Rubber, invented by Charles Goodyear, of New Haven, and the application of it, and the form in which it is used, were invented by F. M. Ray, of New York. The right to manufacture and sell the substance itself for the purpose of Railroad Carriage Springs, as well as the form and application of it, are held exclusively by the New England Car Company. No other company, or individual, has any right to sell or use it for such purpose, or has attempted so to use it in this country.

The New England Car Company guarantee the right to use the article they sell for Railroad Carriage Springs only, against all adverse rights, whether under patents or otherwise: and all persons and corporations are cautioned against a similar use of the article, when purchased of any other parties.

The Springs they sell are all manufactured in a uniform manner, and under the immediate inspection of their own Agent, and have been proved and known to answer the purpose. None have been manufactured in this country or imported from abroad beside their own, which would at all answer the purpose; and if any such should be produced, it cannot be used for Car Springs, while Goodyear's patents, and the rights of the New England Car Company under them, remain in force.

The New England Car Company are now prepared to answer orders for all that may be called for, on reasonable notice, and uniform and equitable terms. They invite the most careful examination, and the severest scrutiny, into the merits of their Springs, wherever they have applied them. And if after such examination, your Company should judge it for their interest to adopt them, the N. E. Car Company would respectfully invite the patronage which they think they deserve, and are confident of receiving at your hands.

EDWARD CRANE, *Agent*,
Office 99 State street.

Orders may also be left with WM. RIDER & BROTHERS, No. 58 Liberty street, New York, or with
F. M. RAY, *Agent*,
100 Broadway, N. Y.

The following article, from the pen of Mr HALE, the president of the Boston and Worcester railroad, expresses his opinion of this important improvement, as published in the Boston Daily Advertiser of June 7, 1848. He says:

"Of the numerous uses to which the wonderful elasticity and durability of India Rubber renders this material applicable, we are hardly aware of one in which it has been more successful than in forming springs for railroad cars. We have had occasion to observe, for some months past, its application to this use, on one of the passenger cars on the Newton special train of the Boston and Worcester railroad. It is there used, not only for the springs on which the car rests, but for the springs attached to the draw bar at each end of the car, to prevent any jar on the sudden advancement or interruption of the motion of the car. For both these purposes it appears to be admirably adapted, and we do not learn, that during the period in which it has been used, any defect in it has been discovered. It renders the movements of the car extremely easy, and protects it more effectually, we think, than any other spring which we have ever seen in use, from every harsh or unpleasant motion, either vertical or horizontal. It is simple in its form and application, extremely light, and little liable to get out of repair. During the period of some months, in which we have seen the springs in operation, there is no apparent wear or diminution of their efficiency."

The above statement of Mr. Hale agrees with my own observation in all particulars.

WM. PARKER, Supt. B. & W. R. R.
June 8, 1848.

I fully concur in the foregoing statement, from practical observation of its use for the last 5 months, on the Boston and Worcester railroad corporation cars.

D. N. PICKERING, Jr.,
Supt. Car Building B. & W. R. R.
Boston, June 10, 1848.

The New England Car Company have introduced their Vulcanized India Rubber Car Springs on the roads with which we are respectively connected, and we fully concur with Mr. Hale in the above opinion of their character and properties.

DAVENPORT & BRIDGES, Car Builders.
BRADLEY & RICE, Car Builders.
Boston, June, 1848.

LAP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 1¼ to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,
12 Platt street, New York.
JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom. 28tf

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☞ LETTERS and COMMUNICATIONS for this Journal may be directed to the *Editor*,
D. K. MINOR.